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EFFECTS OF TAXATION
INVENTORY ACCOUNTING
AND POLICIES

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EFFECTS OF TAXATION

Inventory Accounting and Policies

J. KEITH BUTTERS
Associate Professor of Business Administration

ASSISTED BY

POWELL NILAND
Instructor in Business Administration

Division of Research
Graduate School of Business Administration
Harvard University
Boston

1949

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Foreword

PROFESSOR BUTTERS' book on inventory accounting and policies is the first volume in the general study of the Effects of Federal Taxation on Business, conducted through the Harvard Graduate School of Business Administration and financed by a grant from the Merrill Foundation for Advancement of Financial Knowledge. The entire project has been divided into a series of separate but related topics, each of which is being developed by one or more of the individual participants.

The subjects of the separate volumes do not in any sense cover the full range of the effects of federal taxation on business. Each has appeared to present an important and manageable area for research. We believe that more substantial results can be achieved in determining the effects of taxation on business, and through business on the national economy, by this limited approach than by a thinner coverage on a more all-inclusive investigation.

The most significant contributions of the study probably will be in the area of the direct effects of taxes on the decisions of business executives and investors in business enterprise. These direct effects will be emphasized more than the indirect economic effects of tax policies on, for example, aggregate levels of consumption and investment. This is not to say that the project will ignore general economic analysis; on the contrary, every effort will be made to interpret and present the immediate direct results as we find them in terms of their general economic and fiscal significance.

With reference to methodology, the distinctive characteristic of this project is the heavy emphasis placed on field investigations. Extensive field inquiries are being made of business managers, tax lawyers and accountants, investment counselling and banking firms, individual investors, and representatives of the Bureau of Internal Revenue. Within the limits of the time available, a large number of business situations are being examined in detail to trace through various tax effects. The purpose of the study is to determine and analyze the effects of taxes; we do not propose as part of this study to develop another tax program or make formal recommendations for changes in tax legislation.

In the entire tax research project we are concerned to explore both the theoretically probable results of federal taxation, on the assumption that business decisions are made logically and with full knowledge of all relevant factors, and the actual results as nearly as we can determine them. Differences between the theoretical and actual effects may arise for many reasons. In any given business problem, the tax factor under consideration may be only a minor one as compared with other dominant ones and hence play only a negligible role or even be ignored intentionally. Also, the tax factor may not be fully or correctly understood by all those participating in the decision. The human element, variable in these matters as in others, makes unreliable or at least improbable any presumptions of uniform reaction to tax considerations. Individual reactions also may be expected to change over time in many respects as people become accustomed to various aspects of our tax structure and as new generations grow up without earlier personal experience of conditions of relatively low taxation.

Since our objective is to inject reality into the discussions of the effects of taxation, we have from the first had to recognize that in some areas we might have to be content with findings that did no more than refute current dogmas, popular or sophisticated, without being able to present any evidence of systematic behavior. Even such negative results, if they represented reality, seemed in anticipation to be worth while, though not particularly satisfying intellectually. It is too soon to know in how many parts of our studies we may have to be satisfied with such limited results.

The other separate studies currently in progress are:

The Effects of Taxation on Individual Savings and Investment Policies — Professor Lynn L. Bollinger and Mr. Lawrence E. Thompson

The Effects of Taxation on Management Incentives — Professor Thomas H. Sanders

The Effects of Taxation on Corporate Compensation and Retirement Plans — Professor Challis A. Hall, Jr.
The Effects of Taxation on Mergers — Professors John Lintner, William L. Cary and J. Keith Butters
The Effects of Taxation on Depreciation Policy under High Replacement Cost — Professor E. Cary Brown
The Effects of Taxation on Corporate Financial Policy — Professor Dan T. Smith

A concluding volume, by Professors Smith and Butters, will integrate the individual studies as well as present certain new material which has not been included in any of the preceding work.

The appearance of this volume as the first in the series to be published is the result of the author's earlier availability rather than any decision that inventories called for first emphasis. The subject is, however, especially appropriate for the combination of theoretical and statistical analysis with field inquiry which is the basic approach in the entire tax research program. The book represents a balanced combination of these different aspects of research. Though other studies will deal with topics of more widespread popular appeal and perhaps with more immediate implications for tax policy, we take great satisfaction in starting the series with this example of thoughtful, scholarly inquiry in the field of taxation.

Taxation has been a major factor influencing inventory accounting procedures in many industries since the last-in first-out method was authorized in 1938 and liberalized in 1939. To a much lesser degree, the inventory accounting procedures induced by taxation have significantly affected the inventory procurement policies of some companies. This last influence is only one of many indirect effects of these revised inventory procedures.

Economists, lawyers, public finance experts, and even most businessmen have traditionally considered inventory accounting a subject of proper concern only to professional accountants. The authorization of last-in first-out accounting, coinciding as it did with the start of the war period when substantial price rises and increased taxes could be foreseen, made the subject one of widespread but by no means general interest. The effect of inventory profits on postwar data on national income and business profits has created a fairly general awareness of the subject among those who should be concerned. That confusion persists, however, even among businessmen directly involved, is one of the findings of the field inquiries — a conclusion which may surprise those who tacitly assume that all management decisions are made on enlightened grounds.

Here, as elsewhere, the realities about the influence of taxation depend on how people actually think, not on how they might be expected to think by dispassionate analysts. The chapter on the reasons for using or refraining from using the last-in first-out method shows the great variety of considerations that lie behind management decisions on this subject. The variety is no less on other types of decisions to be covered in other volumes of this study.

Though inventory profits have been much discussed in recent years, accountants have not agreed as to their nature, nor has there been much knowledge about the extent of use of the last-in first-out method. Professor Butters thus has not been able to start from established positions on these matters. His analysis in these areas accounts for a substantial part of the book and adds to its interest and value.

Though this book is part of the series arising from the tax research program, it is, like the volumes to follow it, the product of the individual author. Consistent with its general policy, the Harvard Graduate School of Business Administration provides facilities and opportunities for research but does not assume any institutional responsibility for the findings.

Because of the many areas upon which the research impinges, the Advisory Committee was established to secure the counsel of individuals with a wide range of viewpoints and specialized professional competence. We gratefully acknowledge the assistance of the members of the Committee in consulting with us in the planning and conduct of the project and in reviewing this manuscript. In making this acknowledgment, it must be strongly emphasized that the function of the Committee is purely advisory and that its members have no individual or collective responsibility for the final products.

In view of the major nature of each of the individual studies in the tax research program, we have from the first planned to have as the principal participants individuals who could properly operate only as independent, though collaborating, authors. The director-staff organization which is perhaps typical in large research projects has not seemed appropriate here. The Director and Associate Director of the program have had the responsibility for developing the plans for the general study, selecting the individual authors, and maintaining a close continuing consultation with them.

In this first foreword we wish to make several general remarks of appreciation applicable to the project as a whole. All those concerned with the study are deeply grateful to the Merrill Foundation for Advancement of Financial Knowledge for its generous grants of $225,000, which have enabled the study to proceed without continuing negotiations and concern about financing.

In the formative stage of this program, Professor W. L. Crum, now of the University of California, gave continuing helpful counsel.

We should like to take this opportunity to express our gratitude for the advice and enthusiastic encouragement of Mr. Albert J. Browning in the early development and planning of the work. By his untimely death the Advisory Committee lost a valuable member.

No project of this size would have been undertaken or carried through without the sincere interest of the Dean and the Director of Research of the School. We deeply appreciate the many ways in which both Dean Donald K. David and Professor Melvin T. Copeland have given us their warmhearted support and have been readily available for discussion, friendly advice, and wise counsel.

DAN THROOP SMITH

Preface

THE relationship of this volume to the rest of the Tax Project need not be discussed here, since it is adequately explained in Professor Smith's Foreword. Likewise, the purpose and major conclusions are covered in the Foreword and in Chapter I. But, inasmuch as the early chapters contain no summary statement of the data used in the study, a brief statement on this point is in order.

In addition to the general literature on inventory problems, three main sources of data have been used: (1) aggregate national income and profits statistics, (2) the financial statements of individual corporations taken mainly from annual stockholder reports or investment manuals, and (3) extensive field interviews with business executives, accountants, Treasury officials, and other informed individuals. The first two sources, which are well known, need not be described in detail; statistical and sampling problems encountered in their use are discussed at appropriate points in the text. The scope and nature of the field work, on which the conclusions of Chapter IV and several later chapters rest, are outlined in the Note to Chapter IV.

In any empirical study such as this, so many obligations are incurred that it would be hopeless to try to acknowledge all of them individually. I can therefore only express my general but sincere thanks to the many individuals whom Mr. Niland and I have interviewed during the course of the study. Without exception we have been graciously received.

Specific acknowledgment is due the individuals who have read the manuscript in preliminary form. Messrs. George D. Bailey, Roy D. Blough, Erwin N. Griswold, David L. Luke, Jr., and Charles E. Spencer of our Advisory Committee have read the manuscript and offered very helpful suggestions ranging all the way from the scope and organization of the study as a whole to the form of citations in specific footnotes. While Professor Alvin H. Hansen, the sixth member of our Advisory Committee, was unable to read the manuscript because of conflicting commitments, he has discussed with me the general problems covered on various occasions before and during the present project.

Among my colleagues on the Tax Project, Professors Thomas H. Sanders, E. Cary Brown, John Lintner, and Dan T. Smith have read part or all of the manuscript. Professors Lintner and Smith, in particular, have frequently offered valuable counsel at difficult stages in the writing process.

Among my colleagues at the Business School, Professors Charles A. Bliss, Russell H. Hassler, Howard T. Lewis, Malcolm P. McNair, and Ross G. Walker, though not officially associated with the Tax Project, have carefully reviewed part or all of the manuscript at my request. Dr. Melvin T. Copeland, Director of Research at the Business School, has also read the manuscript and has held himself available for consultation at all times. Professor Robert Amory, Jr., of the Harvard Law School, Mr. Richard S. Claire of Arthur Andersen & Co., Mr. R. W. Jefferson of Price, Waterhouse & Co., and Dr. Louis Shere, Professor of Economics and Director of Tax Research at Indiana University, have also reviewed the manuscript, as have several of my friends in various government offices. To all these individuals I am deeply indebted.

I wish also to express my gratitude to Misses Virginia Jenness, Grace Lindfors, Rita Nickerson, and Esther Love and her staff for assistance in the compilation of the statistical data; to Misses Marjorie Willard and Marie Driscoll for secretarial help; and to Misses Ruth Norton and Jananne Morse for editing the volume and preparing it for press. Much of the nervous strain attendant to any such study as this has been removed by the able and cheerful cooperation of all these individuals, to whom I express my thanks.

Finally, a special word of appreciation is due Mr. Powell Niland who made a large portion of the field interviews and has participated actively in all phases of the study except the actual drafting of the final manuscript. Much of the information in the volume is the direct outgrowth of his endeavors.

As in all research publications of the Harvard Business School, final and complete responsibility for the study and its conclusions are borne by the author. While the counsel and assistance of the above individuals have added tremendously to the quality of the study, they bear no responsibility for its statement of facts, judgments, or conclusions.

J. KEITH BUTTERS

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EFFECTS OF TAXATION
INVENTORY ACCOUNTING AND POLICIES

CHAPTER I

Introduction and Major Conclusions

TAX requirements with respect to inventory valuation have raised major problems for business managements in recent years; many of these problems will continue to be pressing in years to come. The same tax requirements have had far-reaching economic effects on the entire economy — effects which have not been generally recognized. This monograph therefore discusses the problem of inventory valuation with a dual objective: that of pointing out its implications for individual business managements and that of appraising its over-all economic significance.

Although inconspicuous in character — and overlooked by many businessmen — recent (1938 and 1939) changes in the tax requirements with respect to allowable methods of inventory valuation have been for many companies the determining factor influencing management policies in this area. The valuation placed on inventories is of general importance because it directly affects the amount of net income reported by a company. Differences of millions of dollars in the profits reported by numerous companies can be traced directly to changes in their inventory valuation procedures.

BASIC ACCOUNTING CONCEPTS

For readers not familiar with inventory accounting a brief explanation of the inventory methods most frequently discussed in this book needs to be presented at the outset to make the following discussion intelligible. In an accounting sense, the amount at which inventories are valued affects the net income reported by a company through the determination of its cost of goods sold. The higher the value placed on the ending inventory, the lower will be the costs of inventory goods assigned to sales of the current year.

It is not a simple matter to decide what valuation should be placed on inventories. Decisions must be made as to which inventory goods out of all those handled during the year are assumed to be on hand and what value should be placed on them. Since the inventories of most companies are intermingled so that the goods on hand cannot easily be identified with specific invoices, some arbitrary rule of thumb must be adopted. In times of fluctuating prices the rule adopted is of critical importance, since different procedures in common use yield widely diverse valuations for the same physical inventories.

Historically, the most common procedure has been to assume that inventory goods are sold (or used up in manufacture) approximately in the order in which they were acquired. Under this assumption (usually designated as first-in first-out or "Fifo") the cost of the earliest inventory goods acquired is charged against sales and the ending inventory is deemed to be composed of the most recent goods purchased. The ending inventory is typically valued at the cost of these goods or at market as of the end of the year, whichever is lower. Frequently, average cost, determined in a variety of ways, is used rather than Fifo cost, but broadly speaking the results for our purposes are not greatly affected by this choice. Under this general family of procedures inventories are ordinarily valued at price levels prevailing at or near the time when the accounts are closed; the time lag will depend on the rate of inventory turnover and whether the inventories are valued at market, Fifo cost, or average cost. Correspondingly, sales of the current period will be charged in part with the cost of goods acquired in earlier periods, and the cost of the most recently acquired goods will be carried forward to the next accounting period.

For our purposes the important characteristic of this general procedure is that in periods of rising prices it will show larger profits, as compared with alternative procedures, because a higher value will be placed on ending inventories than on the same quantity of physical inventories held at the beginning of the year. Profits measured by the increase in value placed on a constant volume of physical inventories have been commonly designated as "paper profits" or "inventory profits"; *the term, inventory profits, is so used in the present study.*[1] Some writers have gone so far as to label inventory profits as "fictitious profits" which should be totally excluded in computing net income; indeed, many of the recent shifts in business practice have been made with precisely this objective in mind.

Those who prefer to exclude inventory profits from net income contend that they do not represent disposable cash but rather unrealized (and oftentimes unrealizable) gains. Hence, they point out, it is quite misleading to inflate (or overstate) profits when prices are rising by placing higher values on equivalent physical inventories and then to magnify losses (or understate profits) by writing down the values of the same quantity of inventories when prices fall. As one prominent writer has stated:

> These inventory profits may be called unrealized inventory profits — that is, profits represented by unsold inventories rather than cash. In fact, to a going concern, most of the inventory profits are not only unrealized but they are also unrealizable if the concern is to continue in business. Even though inventories are constantly being turned over, a certain quantity of inventories is a part of the capital equipment of the business. Increases or decreases in inventory values are analogous in every essential to unrealized capital gains or losses. Inventory profits, as here defined, cannot be converted into cash profits without a net liquidation of inventories.[2]

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[1] We have adopted the phrase "inventory profits" as a label for this concept with some hesitancy because it raises two terminological difficulties. First, other concepts have been labeled inventory profits so that the term does not have a precise and universally accepted meaning. Secondly, it may seem confusing to call an increase in inventory values caused by rising costs an "inventory profit," especially since such increases are usually identified for the purpose of eliminating them from reported profits. A phrase which did not label the costs to be so eliminated by the word "profit" would be less confusing.

Despite these difficulties we have decided to accept the common use of the phrase, inventory profits, to designate the increase in the value placed on a constant physical inventory on account of the acquisition of higher cost inventory units. We use this concept repeatedly and must identify it by a descriptive phrase. This explanation and a consistent use of the phrase in this study are relied on to minimize the unavoidable terminological difficulty in this area. Problems concerning the appropriate definition of inventory profits are discussed in more detail in Chapter VI, pages 141-143.

[2] H. B. Arthur, "Inventory Profits in the Business Cycle," *American Economic Review*, March, 1938, p. 28.

Various procedures have been developed to exclude inventory profits and losses from income. Among them are the normal-stock (or base-stock) method, the last-in first-out method, and a more or less formalized use of inventory reserves for inventory price fluctuations. The first two of these methods directly affect the amount of net income reported by maintaining inventories at a fixed valuation to the extent that the same quantities are held at the beginning and end of the year. The third method uses a reserve account to adjust income computed according to the traditional lower-of-cost-or-market method (with cost determined either by the first-in first-out or average-cost rule) in order to earmark inventory profits and losses.

Each of these three methods is discussed in later chapters, but this introductory statement outlines only the last-in first-out ("Lifo") method, since it is by far the most commonly used today and can be taken as broadly typical of this family of methods. As a matter of fact, throughout the book contrasts drawn between the Fifo and Lifo methods actually apply to the two families of methods; they should be so interpreted except where the terms Fifo and Lifo are clearly used in a restricted sense.

The Lifo method reverses the Fifo procedure. Inventory stocks are assumed to be exhausted by sales in the inverse order of their acquisition. Sales are thereby charged with the aggregate cost of the most recent inventory costs incurred, up to the quantity sold. If inventory goods are purchased in the same quantities as they are sold, this method of computing the cost of goods sold will usually approximate current replacement costs. It will also leave the major portion of inventory stocks untouched for accounting purposes and valued at the acquisition cost of some prior period.

As compared with Fifo, Lifo will ordinarily show a smaller profit when prices are rising and a larger profit when prices are falling. If inventory quantities remain constant, the difference in profits will be approximately equal to the amount of inventory profits or losses included in income under the Fifo procedure. Fluctuations in inventory quantities, however, destroy this relationship, especially if they involve large liquidations of Lifo inventories. Under the strict Lifo method, liquidated inventories are costed at their book values which often bear little relationship to current price levels. Hence, unless a reserve is set up out of income for the replacement of liquidated inventories, Lifo does not fully achieve the goal of matching current revenues with current costs. But even when inventory quantities vary it does tend to bring reported profits more nearly in line with disposable profits, since inventory liquidations (unless temporary in character) do free cash for other uses.

Until 1938 and 1939, the tax law as interpreted by the courts and the Treasury did not recognize the use of Lifo and related methods. Before 1938 the Treasury regulations required that the cost or lower-of-cost-or-market methods be used, with cost being determined on a Fifo basis in the absence of specific identification of the goods on hand. In practice, though, the revenue agents generally were much more lenient, freely allowing a variety of methods, especially those based on some form of average costs, provided that the taxpayer followed a consistent practice. Ordinarily Lifo and related methods were disallowed, although one of the surprising findings of our field inquiry is that for tax purposes some companies actually used variations of Lifo for part of or all their inventories before 1938, or thereafter, without fulfilling the statutory requirement of formally electing Lifo.

OUTLINE OF STUDY AND MAJOR CONCLUSIONS

The book is divided into two main parts: Chapters II-VI attempt to answer major policy questions in the area of inventory accounting while Chapters VII-XII examine various technical problems having to do with inventories. Various inventory methods are discussed, but major emphasis is placed on Lifo. One reason for the slight attention which we have given to traditional inventory methods is that taxes have had very little effect on them. Traditional procedures were developed for business accounting and taken over with few changes for purposes of measuring taxable income.

In contrast, since 1939 few management decisions on Lifo have been made without reference to their tax effects. Decisions as to whether to use Lifo, how to apply it, and even as to the industries in which the method constitutes acceptable accounting practice, have been dominated by tax considerations. It would be difficult to cite other instances in which management decisions on matters of broad policy and general economic significance have been more strongly influenced by tax requirements. Another reason for an extensive discussion of Lifo is that a number of issues in the application of the method are as yet unresolved, and information on many others is very scarce.

Stated very briefly, the first part of this book (Chapters II-VI) attempts to answer the following four questions:

(1) Are inventory profits worth bothering about?
(2) What is business doing about them?
(3) What is the general economic significance of different inventory methods?
(4) How are different inventory methods related to general concepts of profits?

The Importance of Inventory Profits

To anyone doubtful as to the importance of inventory profits, the statistics presented in Chapter II should provide a convincing answer. They show that inventory profits and losses are very large in years of rapid price changes, frequently amounting to several billion dollars for all corporations. Furthermore, for individual industries and enterprises inventory profits are, of course, relatively much more important than the data for all corporations indicate. In appraising the size of inventory profits in Chapter II, three main sources of data have been analyzed: statistics on corporate profits compiled by the Department of Commerce; data compiled by the Treasury from tax returns; and illustrative data for individual companies which we have gathered from financial statements or by direct inquiries addressed to company managements.

What Business is Doing about Inventory Profits[3]

We have approached this question in two ways.

First, we have compiled extensive data on the current use of Lifo because the decision as to whether to use Lifo has been the main way in which income reporting has been affected by the concern of management over inventory profits. We have had to compile this information ourselves because no adequate statistical analyses of the extent to which Lifo is used had previously been published. In an effort to fill this gap, we have collected sample data designed to show: the approximate amount of inventories on Lifo as of the end of 1947; the concentration of the use of Lifo by industries and by size of company; and the years in which Lifo has been adopted. These data are summarized in Chapter III. Additional information on Lifo is reported in Appendix A for nearly 200 Lifo companies, identified by name and classified by industry and size class. While the data in the appendix may not interest the casual reader, the information there reported is essential to any thorough-going financial analysis of the companies and industries concerned. These statistical data have been gathered from annual stockholder reports and investment manuals, supplemented in some instances by visits to the companies involved.

It would be pointless to try to summarize this mass of information in a few words. Suffice it to say that Lifo inventories no longer can be brushed aside as of negligible importance. At the end of 1947, Lifo inventories held by manufacturing companies amounted to nearly $3 billion, stated at their book value, or to about 10% of total manufacturing inventories. Restated in terms of 1947 prices this figure would be much larger, amounting to perhaps $4.5 billion or even more. Moreover, the use of Lifo is concentrated in a limited range of industries and among large companies so that its relative importance is much greater in some areas of the economy than might be inferred from these aggregate estimates.

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[3] Once again, the reader should be reminded of the definition of inventory profits which we are using (see page 3) and the purpose of our study. Our emphasis is essentially that of financial accounting and of the effects of various financial accounting policies, for business or tax purposes, on management de-

(*Footnote continued on next page*)

The second approach which we have taken to the question — What has business done about inventory profits? — has been to examine the considerations affecting management decisions on the adoption of Lifo (Chapter IV). The only way to get information on this difficult problem has been to talk to the people who made the decisions or who watched them made. We have therefore conducted an extensive series of interviews with businessmen, accountants, government officials, and others closely associated with management decisions on Lifo. The scope of this field work, on which parts of the later chapters are also based, is described in detail in the Note to Chapter IV.

Perhaps the outstanding conclusion of our field work on management considerations on Lifo is the complexity and multiplicity of the issues which must be taken into account before an intelligent decision can be made. The scope of these issues can be only sketchily indicated here.

Undoubtedly the opportunity to reduce tax liabilities has been by far the most powerful motivation leading to the widespread adoption of Lifo during the past decade. The combination of sharply rising prices and high excess profits taxes gave managements in many industries a strong tax incentive to shift to Lifo during the early war years. The large postwar price increases caused some companies to make the shift as late as 1946 and 1947, though the risk of ultimate tax penalties was then greater because of the height to which price levels had already risen.

In general, the opportunities for tax savings from the use of Lifo depend on the combined effects of the following factors: (1) the course of future price movements, (2) fluctuations in tax rates and changes in the tax structure, (3) variations in the amounts and kinds of physical inventories held at the end of each taxable year, (4) the relative stability of income from sources other than inventory profits and losses, and (5) the existence in the tax law of averaging devices such as loss carry-backs and carry-overs. The interaction of these factors, how-

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cisions and on the national economy. Unless these facts are kept in mind the concentration of this section on Lifo might seem badly out of balance to some readers, e.g., those interested mainly in inventory procurement policies.

ever, is too complex for a statement of their effects to be compressed into this brief summary.

While tax incentives have been the controlling motivation in the decisions of most managements that have adopted Lifo in the last ten years, account has been taken of numerous other considerations. A few companies used Lifo or related methods such as base-stock for many years before the tax law recognized Lifo. Their decisions were motivated mainly by the belief that such methods would give a more meaningful statement of income for management and stockholder purposes. Many executives who recalled the severe inventory losses of 1920 and 1921 were also anxious to provide a "cushion" to protect themselves from the necessity of reporting similar losses in the event of a price collapse at the end of World War II. They saw in the availability of Lifo an opportunity to accomplish this objective and at the same time to make substantial tax savings.

Apart from uncertainties as to the ultimate tax benefits to be derived from Lifo, the major reasons causing some managements to refrain from electing it can only be listed. In many industries inventory profits and losses are so small that the problem quite properly was not given serious attention by management. But in other industries in which the problem was important numerous companies simply allowed the matter to be settled by default — at least until prices had risen to the point where the possibility of benefiting taxwise from electing Lifo appeared highly dubious.

In part, the failure of many managements to give serious thought to Lifo in the early war years can be attributed to the specialized character of the problem, to the heavy burden of other pressures on management during these years, to the prevailing accounting opinion that Lifo was appropriate for only a narrow range of industries, and to the early administrative interpretations of the Treasury which favored a narrow application of the method. Another reason for the hesitancy on the part of many managements to shift to Lifo was the belief that the administrative burden of operating the method would be unduly troublesome. Financial considerations, such as the unfavorable effect which Lifo would have on immediate profit showings and the restrictions which it might impose on dividend distributions, also caused some companies to refrain from shifting to it. All these matters are discussed at length in Chapter IV.

Economic Significance of Different Inventory Methods

From a broad social viewpoint the most important question in the whole area of inventory methods is whether methods which include inventory profits and losses in income, or those which exclude them, promote a greater degree of stability in our national economy. Unfortunately, we have not been able to pursue this important question to the point where it can be definitely answered. Some relevant material has been gathered in our field work but most of Chapter V, which deals with this question, is written at a more tentative and theoretical level than the rest of the volume. One reason for this tentative treatment is that we hope to pursue the analysis of some matters covered in this chapter further in later monographs. Another is that the problems in this area by their very nature are much more intangible and difficult to appraise than those discussed in other chapters.

Briefly the topics dealt with in Chapter V are the effects of different inventory methods on the expectations of business management; the working capital position of business; dividend policies; wage policies; inventory procurement policies; and (*very sketchily*) plant and equipment acquisitions and pricing decisions.

If any meaningful summary statement can be made, it is that in economic terms the case for including or excluding inventory profits from income rests on the effects of these policies on (1) business and investor expectations and (2) the cash position of business. The inclusion of inventory profits and losses in income tends to produce excesses of business optimism in times of rising prices and unwarranted business pessimism in times of falling prices. On the other hand, the fact that taxes must be paid on inventory profits if they are included in income tends to put business in a tighter cash position in times of rising prices as compared with the situation if inventory profits are excluded from income. Similarly, if inventory losses are allowed as deductions in the determination of taxable income, business will have smaller tax liabilities and be in a freer cash position in years of falling prices.

As a general statement, these "psychological" and "cash" effects tend to work in opposite directions. For policy purposes, a decision must be made as to the relative weight to be attached to each of them. The issue is exceedingly complex, and our conclusion is admittedly tentative and based on highly incomplete evidence. For what it is worth, however, we believe that, so far as economic effects are concerned, it would be wise to adopt a concept of income which excludes the distorting effects of inventory profits and losses. While we recognize the importance of a counter-cyclical national fiscal policy, we believe such a policy can be better implemented by other means than relying on a concept of income which exaggerates the extremes of business and investor expectations and which causes profits data to be subject to easy misinterpretation by the public.

Inventory Aspects of General Concepts of Profits

The bearing of methods of inventory valuation on general concepts of profits is discussed first with respect to business profits and then, less elaborately, with respect to taxable income and national income measurements.

Several criteria have frequently been used in deciding how inventories should be valued in measuring business profits. Perhaps the oldest of these is that in deciding which inventories are regarded as remaining on hand at the end of an accounting period, the order in which goods actually flow through the enterprise should govern the accounting rule (e.g., Fifo, Lifo, or average-cost) to be followed. In recent years, however, a criterion more widely accepted by accountants is that the choice of inventory methods should be made mainly with reference to the relationship which cost and selling prices bear to each other. A third criterion which has received enthusiastic support from some accountants and businessmen is that inventory methods should be used which tend to bring stated profits more nearly into line with the disposable cash arising from operations. A closely related criterion which has received strong support on account of the large war and postwar price rises is that sales and cost prices should be stated in terms of the same, i.e., the current, price level.

These four criteria are discussed at considerable length in Chapter VI and to some extent in later chapters. Our general conclusion is that for the broad purposes of financial reporting the disposable-cash and current-cost criteria applied to inventory accounting have great merit in industries where a large and continuing investment in inventories must be maintained to support effective operations.

Essentially the same conclusion is reached in the discussion of taxable income. To the extent that inventories considered as a unit represent a necessary continuing investment to a firm, changes in the value placed on a constant physical volume of inventories can be likened to unrealized capital gains on fixed assets and appropriately be excluded from taxable income until the inventories are liquidated. The Lifo method in essence accomplishes this exclusion.

Similarly, it is essential to the proper measurement of national income that inventories on hand at the beginning and end of the year be valued at the same price level. Otherwise the objective of national income accounting, namely, the measurement of the volume of goods and services produced in a given year, would be obscured by the element of price inflation or deflation which would be introduced by valuing beginning and ending inventories at differing price levels.

Descriptive and Technical Material of Chapters VII-XII

As already indicated, Chapters VII-XII deal mainly with descriptive material and technical questions rather than with the broad policy matters treated in the first six chapters. Chapter VII describes the traditional lower-of-cost-or-market method as employed for tax purposes and in business accounting. Since tax practice has largely taken over business accounting procedures, so far as this method is concerned, the chapter contains relatively few illustrations of situations in which tax considerations are of major importance.

In contrast to the lower-of-cost-or-market method, procedures used by most companies in applying Lifo have been dominated by tax requirements. These procedures and the problems arising from them are discussed at length in Chapters VIII-X.

Special attention is given in Chapter VIII to the methods used in pooling or grouping goods into categories in the application of Lifo. The most thorny administrative problems in applying Lifo have arisen in this area, both for the Treasury and for taxpayers. Since the regulations deal with this problem only in general terms, most of our information on the detailed procedures followed has been obtained from field interviews. Among a number of unresolved problems in this area the most important probably are the status of the "dollar-value" method as applied to inventories valued on a cost basis and the status of the retailers' claim for the right to elect Lifo retroactively to 1941.

A number of taxpayers not on the retail method have used methods of inventory grouping closely similar to the price-index procedures employed by department stores on Lifo. While the Treasury has not officially ruled on the acceptability of these practices, the trend of Treasury policy, reinforced by recent court decisions, would seem to point to eventual Treasury recognition of the dollar-value procedure in non-retail applications.

As for the retailers' claim for a retroactive application of Lifo, which is taken up in Chapter X, our conclusion is that the public interest would not be served if the Treasury or Congress were to grant this privilege on a broad scale. There may, however, be a small number of companies with valid claims for relief.

Problems arising from the liquidation of Lifo inventories are discussed in detail in Chapter IX. Among the topics covered are the wartime relief provision for involuntarily liquidated inventories, analogous problems which will arise for tax purposes in connection with peacetime liquidations of Lifo inventories, and various problems in financial reporting created by fluctuations in Lifo inventory holdings. Problems in connection with interim financial reports and seasonal fluctuations in Lifo inventories are covered under the last mentioned heading. All these problems are too technical and detailed for conclusions with respect to them to be stated in a paragraph or two.

Chapter XI analyzes two variants of Lifo, the normal-stock and inventory-reserve methods. While these methods are not recognized for tax purposes, they are still used in varying degrees in business accounting. Finally, Chapter XII summarizes problems in the measurement of national income created by the increasing use of Lifo. Many of the problems arising at the level of the individual business enterprise have their counterparts in the measurement of national income and aggregate corporate profits. Once again, however, the issues discussed in the last two chapters are so technical that they defy a brief and simple summary statement.

CHAPTER II

Quantitative Importance of Inventory Profits

THE importance of the problems discussed in this book depends largely on the quantitative effect of different inventory procedures on the size of corporate profits.[1] If this effect is small, the debate as to the merits of various methods of inventory valuation cannot be regarded as of great practical significance — however interesting the conceptual issues may be. On the other hand, if the magnitudes are large, or potentially large, the problem is inevitably of major importance both to the managements and owners of individual business enterprises and to the economy as a whole.

Information with respect to the size of inventory profits can be derived from various sources of which the national income and business profits data published by the Department of Commerce, *Statistics of Income* (compiled by the Treasury Department from tax returns), and the financial reports of individual companies are the most helpful. These three sources will be examined in turn.

DEPARTMENT OF COMMERCE ESTIMATES

The Department of Commerce data on corporate profits provide the most comprehensive information on the aggregate size of inventory profits and losses for the economy. The Department publishes estimates of total corporate profits based on data reported by corporations on tax returns and in their published statements and also an *inventory valuation adjustment* which estimates the amount of inventory profits and losses contained in the corporate profits figure. While the

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[1] The problem of inventory profits is not, of course, limited to corporations. Adequate data on business profits are available, however, only for corporations. Moreover, economic activity in most of the industrial areas in which inventory profits are important is carried on mainly under the corporate form of organization — merchandising is the chief exception to this statement. For both these reasons the statistical analysis of this chapter is limited to corporate data.

Commerce estimates are necessarily subject to important statistical qualifications, they are adequate to indicate the general magnitude of inventory profits and losses.[2] In specific terms the Department's inventory valuation adjustment is designed to measure the portion of the change in the book value of corporate inventories in any given year which is attributable to the change in the unit prices at which the beginning and ending inventories are valued.[3] With the effect of price fluctuations thus identified, the physical increase or decrease in the quantity of goods held can be estimated; this is the measurement needed for national income computations.[4] On an aggregate basis the Commerce adjustment is approximately equivalent to our definition of inventory profits and losses applied to individual companies.

The inventory valuation adjustment thus computed is negative in years of rising prices and positive in years of declining prices. The negative figure in years of rising prices indicates that in these years profits as originally reported must be adjusted downward to eliminate inventory profits; similarly, in years of falling prices the positive adjustment indicates that profits must be increased (or losses reduced) to eliminate the inventory losses.

As Table 1 shows, the magnitude of the inventory valuation adjustment is often very large. In seven of the years since 1929 the adjustment has exceeded $2 billion; in 1946 and 1947 it exceeded $5 billion. The significance of these amounts becomes more apparent when they are compared with the level of corporate profits. In a year of sharp price declines such as 1930, the exclusion of inventory losses in the measurement of

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[2] In strict terms, the Department of Commerce estimate applies mainly to the non-Lifo segment of the economy. Inventories recognized to be on Lifo are segregated by the Department for special treatment in the computation of its inventory valuation adjustment. This segregation is necessary since the use of Lifo itself eliminates the effect of price fluctuations on inventory values under most circumstances.

[3] The Department also publishes an inventory valuation adjustment for certain noncorporate inventories, but these inventories are not included within the scope of the present discussion.

[4] Inasmuch as the purpose of this chapter is to give an over-all impression of the magnitude of inventory profits and losses in various industries and under various price conditions, technical problems concerning the definition and computation of the Department's inventory valuation adjustment are not taken up at this point but rather in Chapter XII.

TABLE 1. CORPORATE PROFITS AND INVENTORY VALUATION ADJUSTMENT: 1929-1948

(In millions)

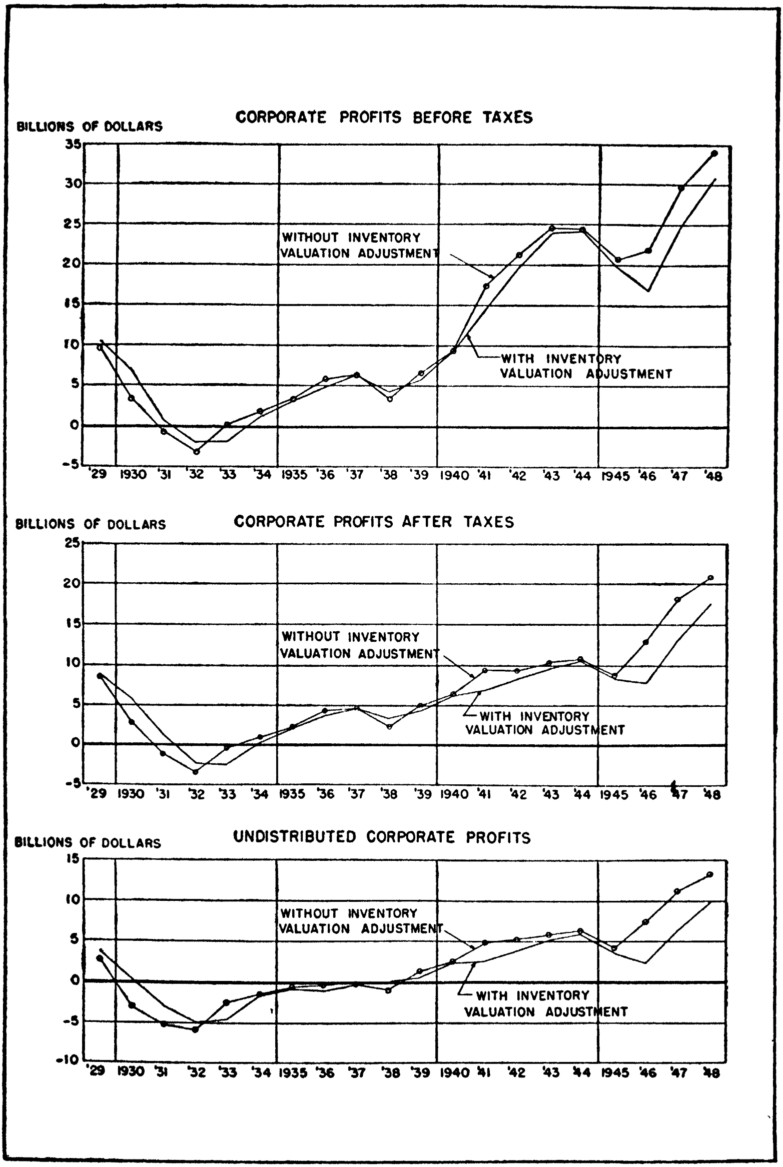
		Corporate Profits before Taxes		*Corporate Profits after Taxes*		*Undistributed Corporate Profits*	
Year	*Inventory Valuation Adjustment*	*With No Inventory Valuation Adjustment*	*With Inventory Valuation Adjustment*	*With No Inventory Valuation Adjustment*	*With Inventory Valuation Adjustment*	*With No Inventory Valuation Adjustment*	*With Inventory Valuation Adjustment*
1929	$ 472	$ 9,818	$10,290	$ 8,420	$ 8,892	$ 2,597	$ 3,069
1930	3,260	3,303	6,563	2,455	5,715	−3,045	215
1931	2,414	−783	1,631	−1,283	1,131	−5,381	−2,967
1932	1,047	−3,042	−1,995	−3,424	−2,377	−5,998	−4,951
1933	−2,143	162	−1,981	−362	−2,505	−2,428	−4,571
1934	−625	1,723	1,098	977	352	−1,619	−2,244
1935	−227	3,224	2,997	2,259	2,032	−613	−840
1936	−738	5,684	4,946	4,273	3,535	−284	−1,022
1937	−31	6,197	6,166	4,685	4,654	−8	−39
1938	963	3,329	4,292	2,289	3,252	−906	57
1939	−714	6,467	5,753	5,005	4,291	1,209	495
1940	−148	9,325	9,177	6,447	6,299	2,398	2,250
1941	−2,617	17,232	14,615	9,386	6,769	4,921	2,304
1942	−1,274	21,098	19,824	9,433	8,159	5,136	3,862
1943	−824	24,516	23,692	10,363	9,539	5,886	5,062
1944	−294	24,333	24,039	10,808	10,514	6,128	5,834
1945	−613	20,389	19,776	8,748	8,135	4,028	3,415
1946	−5,028	21,840	16,812	12,840	7,812	7,235	2,207
1947	−5,075	29,784	24,709	18,075	13,000	11,195	6,120
1948*	−3,300	34,000	30,700	20,800	17,500	13,200	9,900

* Inventory valuation adjustment estimated by Department of Commerce and profits data estimated by Council of Economic Advisers.

NOTE: Subject to qualifications made in Chapter XII the data under the heading "With Inventory Valuation Adjustment" show corporate profits after taxes and undistributed corporate profits after the removal of inventory profits (as measured by the inventory valuation adjustment) *under the existing tax law and corporate inventory valuation procedures.* They do not purport to show what corporate profits after taxes or undistributed corporate profits would have been if all inventory profits and losses had been excluded from taxable income, say, by the universal election of Lifo.

SOURCE: Basic data from U.S. Department of Commerce, *Survey of Current Business*, July, 1948, p. 16.

CHART 1. DATA ON CORPORATE PROFITS, 1929-1948



SOURCE: Table 1, p. 17.

corporate profits would have raised corporate profits before income taxes from $3.3 billion to double this amount, or $6.6 billion. On the other hand, in 1946, a year of substantial price increases, corporate profits before taxes amounted to $21.8 billion as reported; with inventory profits excluded, however, they were $16.8 billion. As Chapter V indicates, differences of this magnitude in the presumed level of corporate profits have important repercussions on a variety of business decisions and on the policies of government officials and labor union leaders.

If the inventory valuation adjustment is compared with estimates of *corporate profits after taxes* or with *undistributed corporate profits*, its relative magnitude appears even greater. In 1946, for instance, inventory profits as estimated by the Department of Commerce amounted to 23% of corporate profits before taxes, to 39% of corporate profits after taxes, and to 69% of undistributed corporate profits. The corresponding figures for 1947 are 17%, 28%, and 45%, respectively; the 1947 percentages are smaller because of the higher absolute level of corporate profits in 1947.[5]

In dollar terms, corporate profits after taxes in 1946 amounted to $12.8 billion or to $7.8 billion, depending on the treatment of the inventory adjustment. The corresponding figures for 1947 are $18.1 billion and $13.0 billion, respectively.[6] The force — indeed, the accuracy — of many statements with reference to the height of corporate profits or the adequacy of corporate retained earnings is greatly affected by the concept of profits which is used; this point is developed in more detail in Chapter V.

Clearly, if the inventory adjustment is large in relation to corporate profits for the economy as a whole, it will be even larger for the industries in which inventory profits and losses are concentrated. Any attempt to ascertain the importance of inventory profits in various industries is, however, beset with many difficulties. The relationship will vary from year to year depending on price fluctuations and shifts in inventory holdings; moreover, an attempt to express the relationship statistically encounters mechanical difficulties. Nevertheless, Table 2, cautiously interpreted, presents useful information with respect to the importance of inventory profits in various industries.

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[5] According to estimates made by the Council of Economic Advisers and the Department of Commerce the corresponding figures for 1948 will be 10%, 16%, and 25%, respectively. The 1948 percentages are substantially lower than either 1946 or 1947 both because unadjusted profits were higher and because the inventory valuation adjustment was smaller.

[6] Estimated figures for 1948 are $20.8 billion and $17.5 billion, respectively.

TABLE 2. INVENTORY VALUATION ADJUSTMENT

(Dollar figures

	1930		*1933*	
Industrial Groups	*Amount*	*% of Total*	*Amount*	*% of Total*
All corporations	$3,260	100.0%	−$2,143	−100.0%
Mining	122	3.7	− 67	− 3.1
Contract construction	30	0.9	− 22	− 1.0
Manufacturing	2,215	68.0	−1,340	−62.5
Food and kindred prod.	372	11.4	−208	− 9.7
Tobacco	15	0.5	+ 10	+ 0.5
Textile-mill products	372	11.4	−368	−17.2
Apparel, etc.	64	2.0	− 72	− 3.4
Lumber & timber basic prod.	59	1.8	− 66	− 3.1
Furniture & finished lumber	41	1.3	− 54	− 2.5
Paper and allied prod.	22	0.7	− 37	− 1.7
Printing and publishing	15	0.5	− 5	− 0.2
Chemicals and allied prod.	102	3.1	− 30	− 1.4
Petroleum and coal prod.	341	10.5	−121	− 5.6
Rubber products	92	2.8	− 52	− 2.4
Leather and leather prod.	87	2.7	− 79	− 3.7
Stone, clay, and glass prod.	8	0.2	− 25	− 1.2
Iron, steel, and their prod.	161	4.9	− 53	− 2.5
Nonferrous metals and prod.	153	4.7	−109	− 5.1
Machinery (except electrical)	122	3.7	− 22	− 1.0
Electrical machinery	36	1.1	− 6	− 0.3
Transp. equip. (except autos)	14	0.4	− 2	− 0.1
Autos and auto equipment	75	2.3	− 10	− 0.5
Miscellaneous	64	2.0	− 31	− 1.4
Trade	804	24.7	−627	−29.3
Wholesale	432	13.3	−281	−13.1
Retail trade and auto services	372	11.4	−346	−16.2
Transportation	53	1.6	− 52	− 2.5
Com. and public utilities	36	1.1	− 35	− 1.6

SOURCE: Basic data from U.S. Department of Commerce: For 1930, 1933, and 1941, *National Income Supplement to Survey of Current Business*, July, 1947, p. 34;

This table shows for selected years the dollar amount of the inventory adjustment classified by industrial groups and the percentage relationship of the adjustment for each group to that for the entire corporate economy. Data are presented for one year of sharp price declines (1930) and for four years of substantial price rises (1933, 1941, 1946, and 1947). Although the relationship varies from year to year, approximately two-

FOR SELECTED YEARS, BY INDUSTRIAL GROUPS

in millions)

1941		*1946*		*1947*	
Amount	*% of Total*	*Amount*	*% of Total*	*Amount*	*% of Total*
-$2,617	-100.0%	-$5,028	-100.0%	-$5,075	-100.0%
- 17	- 0.7	- 81	- 1.6	- 80	- 1.6
- 14	- 0.5	- 25	- 0.5	- 32	- 0.6
-1,654	-63.2	-3,018	-60.0	-3,250	-64.0
-360	-13.8	-651	-13.0	-507	-10.0
- 80	- 3.1	-118	- 2.3	- 95	- 1.9
-286	-10.9	-277	- 5.5	-139	- 2.7
- 82	- 3.1	-157	- 3.1	- 82	- 1.6
- 32	- 1.2	- 28	- 0.6	- 84	- 1.7
- 45	- 1.7	- 62	- 1.2	-218	- 4.3
- 27	- 1.0	- 68	- 1.4	-125	- 2.5
- 16	- 0.6	- 61	- 1.2	- 68	- 1.3
-252	- 9.6	-267	- 5.3	-246	- 4.8
-139	- 5.3	- 79	- 1.6	-164	- 3.2
- 28	- 1.1	- 5	- 0.1	+ 63	+ 1.2
- 30	- 1.1	-107	- 2.1	-105	- 2.1
- 17	- 0.7	- 46	- 0.9	- 54	- 1.1
- 38	- 1.5	-300	- 6.0	-453	- 8.9
- 11	- 0.4	-130	- 2.6	-197	- 3.9
- 58	- 2.2	-226	- 4.5	-236	- 4.6
- 25	- 1.0	-131	- 2.6	-148	- 2.9
- 27	- 1.0	- 81	- 1.6	- 88	- 1.7
- 51	- 2.0	-106	- 2.1	-106	- 2.1
- 50	- 1.9	-118	- 2.3	-198	- 3.9
-882	-33.7	-1,683	-33.5	-1,381	-27.2
-483	-18.5	-848	-16.9	-785	-15.5
-399	-15.2	-835	-16.6	-596	-11.7
- 30	- 1.1	-142	- 2.8	-203	- 4.0
- 20	- 0.8	- 79	- 1.6	-129	- 2.6

for 1946 and 1947, *Survey of Current Business,* July, 1948, p. 21.

thirds of the total adjustment regularly applies to manufacturers' inventories and one-third to one-fourth to merchandise inventories. Within manufacturing the relationship varies so much from year to year that no simple summary statement can be made, except to point out this variation.

STATISTICS OF INCOME DATA

A second means of gauging the quantitative importance of inventory profits is provided by *Statistics of Income* data. From these data it is possible to estimate the size of inventory profits in various industries, given any specified price change, by determining the relationship of inventories to an appropriate measure of the magnitude of the industry.

Two appropriate ratios which indicate the probable importance of inventory profits or losses in an industry, given a specified price change, are inventories to net worth and inventories to total assets. In industries in which these ratios are high, inventory profits and losses may safely be assumed to be potentially of great importance; the reverse statement holds for industries in which these ratios are relatively small. Tables 3 and 4 present these ratios for industrial groups in manufacturing and trade for the years 1938-1942. Within the manufacturing group inventory profits (losses) are potentially large in relation to net worth or total assets in such industries as apparel and leather; they are less likely to be large, other things being equal, in printing and publishing, petroleum and coal products, and stone, clay, and glass products. Inventories typically are relatively large for trade corporations; under usual inventory valuation methods substantial price changes would have marked effects on inventory values in relation to either of the above benchmarks.

Several important qualifications must, however, be made to the preceding paragraphs.

First, these tables show only the *potential* importance of inventory profits (losses). These profits will be experienced in fact only in proportion to the extent of the price changes that actually occur. Industries for which the above ratios are largest may actually have relatively small inventory profits and losses because the prices of their inventories tend to be rela-

TABLE 3. PERCENTAGE OF INVENTORIES TO NET WORTH: MANUFACTURING AND TRADE, 1938-1942

Industrial Groups	*1938*	*1939*	*1940*	*1941*	*1942*	*Five-Year Average**
Total manufacturing	24.7%	25.9%	27.9%	33.4%	33.5%	29.1%
Food and kindred products	27.3	28.0	26.9	34.7	34.3	30.2
Beverages	34.4	35.3	37.2	40.9	40.9	37.7
Tobacco	63.4	65.2	66.0	76.7	86.2	71.5
Textile-mill products	32.8	35.6	38.1	42.7	41.7	38.2
Apparel and products made from fabrics	45.1	53.6	54.0	71.2	66.0	58.0
Leather and products	48.5	50.4	52.1	59.9	52.5	52.7
Rubber products	28.9	31.4	36.1	38.6	45.4	36.1
Lumber and timber basic products	22.1	22.1	22.0	22.9	19.4	21.7
Furniture and finished lumber	32.6	35.7	37.3	44.3	37.6	37.5
Paper and allied products	17.4	18.3	19.3	20.9	22.1	19.6
Printing and publishing	10.2	10.8	11.2	13.6	14.1	12.0
Chemicals and allied products	19.9	20.0	20.8	26.2	23.8	22.1
Petroleum and coal products	15.0	14.4	15.0	15.4	12.7	14.5
Stone, clay, and glass products	17.7	18.0	18.7	21.7	20.1	19.2
Iron, steel, and their products	30.8	31.8	35.0	34.6	32.4	32.9
Nonferrous metals and products	28.3	30.2	30.8	31.4	30.4	30.2
Electrical machinery and equipment	27.3	28.4	33.3	48.3	53.3	38.1
Machinery (except transp. and elec.)	28.0	29.3	32.2	40.2	40.7	34.1
Automobiles & auto equip. (except elec.)	16.8	19.2	20.9	27.4	42.0	25.3
Transportation equipment (except autos)	17.5	27.5	47.0	75.9	58.1	45.2
Other manufacturing	23.8	24.9	33.8	44.1	48.4	35.0
Manufacturing not allocable	29.2	29.5	34.3	42.5	41.2	35.3
Total trade	42.3	44.3	47.3	54.3	49.1	47.5
Wholesale trade	45.1	47.5	52.4	60.2	53.8	51.8
Total retail trade	40.9	42.3	44.5	51.1	47.7	45.3

* The five-year average was computed as a simple arithmetic mean of the percentages for individual years. This crude procedure was used since the data are presented only for illustrative purposes.

SOURCE: Computed from *Statistics of Income*, Part 2, 1938-1942.

TABLE 4. PERCENTAGE OF INVENTORIES TO TOTAL ASSETS: MANUFACTURING AND TRADE, 1938-1942

Industrial Groups	*1938*	*1939*	*1940*	*1941*	*1942*	*Five-Year Average**
Total manufacturing	18.6%	19.4%	20.4%	23.1%	21.7%	20.6%
Food and kindred products	20.5	21.2	20.5	24.8	24.5	22.3
Beverages	22.1	23.0	23.9	25.3	25.6	24.0
Tobacco	50.4	51.4	51.6	54.4	57.6	53.1
Textile-mill products	25.5	27.4	28.8	31.3	30.1	28.6
Apparel and products made from fabrics	30.0	33.8	33.5	40.7	38.5	35.3
Leather and products	35.1	36.5	36.4	40.4	37.4	37.2
Rubber products	19.2	20.7	23.4	24.1	26.0	22.7
Lumber and timber basic products	16.4	16.5	16.4	17.0	14.4	16.1
Furniture and finished lumber	24.2	26.1	27.0	30.7	27.5	27.1
Paper and allied products	12.4	13.1	14.0	15.5	16.6	14.3
Printing and publishing	7.2	7.6	7.9	9.4	9.9	8.4
Chemicals and allied products	16.1	16.1	16.3	19.5	18.2	17.2
Petroleum and coal products	11.4	11.0	11.4	11.6	9.4	11.0
Stone, clay, and glass products	14.0	14.3	14.9	16.6	15.4	15.0
Iron, steel, and their products	20.1	21.0	22.5	21.7	19.6	21.0
Nonferrous metals and products	21.6	22.4	22.7	21.7	19.5	21.6
Electrical machinery and equipment	22.2	22.7	25.5	31.4	28.3	26.0
Machinery (except transp. and elec.)	23.1	23.8	25.0	28.2	25.3	25.1
Automobiles & auto equip. (except elec.)	14.1	16.0	16.6	22.0	25.2	18.8
Transportation equipment (except autos)	13.7	18.6	23.5	30.3	24.2	22.1
Other manufacturing	18.2	19.0	25.5	29.5	29.0	24.2
Manufacturing not allocable	22.3	21.0	23.0	27.4	25.3	23.8
Total trade	26.2	27.1	28.3	30.9	30.0	28.5
Wholesale trade	26.6	27.3	28.9	31.5	30.1	28.9
Total retail trade	26.3	27.0	27.9	30.5	30.5	28.4

* The five-year average was computed as a simple arithmetic mean of the percentages for individual years. This crude procedure was used since the data are presented only for illustrative purposes.

SOURCE: Computed from *Statistics of Income*, Part 2, 1938-1942.

tively stable. Other industries in which the relative size of inventories is smaller may show larger inventory profits because of widely fluctuating inventory prices. Petroleum refiners, for instance, may have much larger inventory profits and losses in relation to other industries than would be anticipated from Tables 3 and 4.

Secondly, as with any presentation of industrial aggregates, wide variation must be expected within the various groups — especially, when heterogeneous companies are combined into a single group. To illustrate, meat packers typically have higher ratios of inventories to net worth or total assets than the average ratios for the foods group, and many petroleum companies have much higher ratios than those shown for the petroleum and coal products group.

Thirdly, inventories may be large in relation to net worth or total assets without being large in relation to total net income under normal price fluctuations. This situation occurs when sales markups are very large in relation to inventory costs, when inventory turnover is rapid, and when relatively small investments in tangible assets are required to maintain the enterprise. Some of the trade groups undoubtedly fall in this category.

Subject to these qualifications, Table 5 provides another crude but revealing method of indicating the potential importance of inventory profits and losses; it shows the effect of different degrees of price change upon the profit rate of industries based on the ratios of inventories to net worth shown in Table 3. A 20% change in the prices at which representative inventory goods for manufacturing as a whole were valued, for instance, would result in a reported profit or loss of 5.8% on net worth. For the apparel and leather industries, the rate of inventory profit under similar assumptions would be from 10% to 12%. Similar results would be reported for many trade groups.

By comparing these hypothetical illustrations with the customary concept of a normal profit rate and with known price fluctuations in the past decade — or probable fluctuations in the future — the importance of inventory profits becomes clear. Under the recent excess profits tax, for instance, a

TABLE 5. POTENTIAL EFFECT OF PRICE CHANGES ON PROFIT RATES OF MANUFACTURING AND TRADE

(Based on 1938-1942 data)

Industrial Groups	*Inventory Profit Rates on Net Worth with Percentage Price Changes of:*			
	10%	20%	50%	100%
Total manufacturing	2.9%	5.8%	14.6%	29.1%
Food and kindred products	3.0	6.0	15.1	30.2
Beverages	3.8	7.5	18.9	37.7
Tobacco	7.2	14.3	35.8	71.5
Textile-mill products	3.8	7.6	19.1	38.2
Apparel and products made from fabrics	5.8	11.6	29.0	58.0
Leather and products	5.3	10.5	26.4	52.7
Rubber products	3.6	7.2	18.1	36.1
Lumber and timber basic products	2.2	4.3	10.9	21.7
Furniture and finished lumber	3.8	7.5	18.8	37.5
Paper and allied products	2.0	3.9	9.8	19.6
Printing and publishing	1.2	2.4	6.0	12.0
Chemicals and allied products	2.2	4.4	11.1	22.1
Petroleum and coal products	1.5	2.9	7.3	14.5
Stone, clay, and glass products	1.9	3.8	9.6	19.2
Iron, steel, and their products	3.3	6.6	16.5	32.9
Nonferrous metals and products	3.0	6.0	15.1	30.2
Electrical machinery and equipment	3.8	7.6	19.1	38.1
Machinery (except transp. and elec.)	3.4	6.8	17.1	34.1
Automobiles & auto equip. (except elec.)	2.5	5.1	12.7	25.3
Transportation equip. (except autos)	4.5	9.0	22.6	45.2
Other manufacturing	3.5	7.0	17.5	35.0
Manufacturing not allocable	3.5	7.1	17.7	35.3
Total trade	4.7	9.5	23.7	47.5
Wholesale trade	5.2	10.4	25.9	51.8
Total retail trade	4.5	9.1	22.6	45.3

SOURCE: Computed from Table 3.

corporation might easily have been liable for excess profits taxes solely because of inventory profits. Price rises confronting some companies in 1941, for instance, were more than sufficient to create inventory profits larger than their excess profits credits.

The above statistical evidence, however, must be interpreted with caution. The analysis assumes that as inventory goods turn over inventory valuations are responsive to price changes. For tax purposes in years before 1938, at least, this assumption is realistic for most industries. Methods of inventory valuation recognized for tax purposes before 1938 ordinarily introduced, with some time lags, such a responsiveness into inventory valuations.[7] But with the tax recognition of Lifo, this assumption is becoming progressively less realistic, though still valid for most industries. A second qualification is that the above generalizations implicitly assume that the ratio of inventories to net worth, or to total assets, was typical during the period 1938-1942. This assumption is reasonably conservative. Inventories, in general, have increased substantially during recent years, probably at least as rapidly as net worth; hence, averages based largely on prewar years should not be low in terms of current data. But they might be high in comparison with some future depression year.

FINANCIAL REPORTS OF INDIVIDUAL COMPANIES

Financial reports of specific business enterprises are the third and most direct source of information on the effect of different methods of inventory valuation on corporate profits. But an attempt to measure the size of inventory profits by reference to corporate reports immediately encounters a very serious practical difficulty; very few corporate reports systematically disclose the magnitude of inventory gains and losses. The instances cited below are therefore of necessity merely illustrative in character.

First, the experience of Swift & Company, which over the years has stressed the effect of price fluctuations on its business operations, is reported as an illustration of a company with extremely large inventory profits and losses. The experience of department stores from 1941 through 1947 is then summarized to illustrate an industry in which price fluctuations are characteristically much less violent. Finally, to give a broader industrial coverage, the effect on income and inventory valuations of shifting to Lifo is shown for 27 companies in 1941, a year of substantial price increases.

Inventory profits and losses are especially large in the meat packing industry because of the large inventories held by the packers and the wide fluctuations in meat prices. In an attempt to isolate the effect of price fluctuations on its profits Swift & Company beginning in 1933 set up as an appropriation from net income a "reserve for inventory price declines." The approximate size of inventory profits and losses for this company therefore can be indicated. Table 6 presents these data.

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[7] In practice, these time lags are probably greater (especially in periods of rising prices) than one would conclude by a theoretical analysis of inventory methods in common use. One accounting reviewer of this study, for instance, stressed the tendency of many managements to allow standard costs to lag behind actual costs in times of rising prices.

Since the amount of profits or losses credited or charged to the inventory reserve account was determined by a decision of the directors in conference and not by a detailed calculation such as a thoroughgoing application of the Lifo method, the data of Table 6 (except for 1941) may not properly be interpreted as measuring precisely the size of inventory profits. Indeed, the company may very well have understated rather than overstated the actual amount of inventory profits in determining the size of credits and charges to the inventory reserve account. In the meat packing industry the concurrent spread between the prices of raw materials and finished products upon which profits depend is usually less on rising than

TABLE 6. NET INCOME BEFORE TAXES OF SWIFT & COMPANY, WITH AND WITHOUT ADJUSTMENTS IN RESERVE FOR INVENTORY PROFITS AND LOSSES: 1933-1941

(Fiscal year ending approximately October 30; figures in thousands)

	Net Income before Taxes		
Year	*Before Inventory Reserve Adjustment*	*After Inventory Reserve Adjustment*	*Adjustments in Inventory Reserve Account*
1933	$12,137	$ 7,870	$ 4,267
1934	14,491	7,991	6,500
1935	17,277	11,277	6,000
1936	14,510	14,510	...
1937	10,973	10,973	...
1938	−2,983	8,017	−11,000
1939	12,403	12,403	...
1940	14,194	14,194	...
1941	45,266*	24,616*	20,650*

* In 1941 the adjustment resulting from the adoption of Lifo is not strictly a reserve adjustment.

SOURCE: Swift & Company, *Year Books*, 1933-1941.

on falling markets; for this reason the directors may have considered it neither necessary nor desirable to regard all inventory profits as unexpendable and hence to establish a reserve equal to the entire amount. This policy would tend to show smaller profits in prosperous times with rising prices than in times of general recession and falling prices. Thus, although the data of Table 6 do not measure inventory profits and losses precisely, a very substantial proportion of stated profits in 1933, 1934, 1935, and 1941 was undoubtedly inventory profits, and the entire loss shown in 1938 — indeed, probably more than this — was an inventory loss.

The Swift management has called the problem of inventory profits and losses to the attention of its stockholders on numerous occasions; for instance, President Holmes commented as follows in 1938:

> I hope that one day our revenue laws will recognize for tax purposes a definition of income which will exclude inventory gains and losses from taxable net income. Such a move on the part of the Federal Government would be definitely in the interest of greater stability in business.[8]

This wish was granted in 1939 when the use of Lifo was authorized for tax purposes. Swift adopted the method for slightly more than 50% of its domestic product inventories for the year ending November 1, 1941, commenting in its *Year Book:*

> . . . at the close of the current fiscal year, November 1, 1941, the inventories of raw materials, goods in process and finished goods in these lines of product, aggregating $53,515,208, have been valued on the "last-in, first-out" method on the basis of their unit values at January 1, 1941, to the extent of the quantities on hand January 1, 1941, and excess quantities on basis of cost of latest acquisitions. The remainder of the domestic inventories at November 1, 1941, aggregating $46,933,294 has been priced as in the past, that is, products where cost was not ascertainable at approximate market prices, allowing for the estimated selling expenses; other products and ingredients and supplies at the lower of cost or market. . . .

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[8] Swift & Company, *Year Book,* 1938, p. 5.

> These methods of valuation . . . have the effect of reducing the total value of the consolidated inventories at November 1, 1941, $20,650,347 below what it would have been had the method of pricing used in past years been followed and the net profits after income and excess profits taxes, approximately $7,000,000 below what they would have been had the method of pricing inventories used in past years been followed.[9]

When Lifo was used for only slightly over 50% of the company's domestic product inventories for 10 months during the fiscal year ending November 1, 1941, net income before taxes was $24.6 million; income and excess profits taxes, $8.0 million; and net income after taxes, $16.6 million.[10] On the former basis of inventory valuation these figures would have been $45.3 million, $21.7 million, and $23.6 million, respectively. In other words, Swift's net income before taxes would have been nearly twice as large if the old method of inventory valuation had been continued; its income and excess profits taxes over two and one-half times the liabilities under Lifo; and its net income after taxes about 40% larger.[11]

Since 1941 Lifo has largely, though by no means completely, eliminated inventory profits and losses from Swift's net income. But the company, following generally accepted accounting practices, has not reported the amount of its net income computed under its former accounting procedures except for 1941, the year in which Lifo was first used; hence Table 6 cannot be carried beyond 1941.

The reasons for Swift's unusually large inventory profits and losses are the large inventories which it must keep on hand and the extremely wide price fluctuations in the products which it handles. Table 7 illustrates the range of these fluctuations by presenting the percentage increase in selected government price indexes from December, 1940, to October, 1941; they range from 20% to about 40% except for cottonseed which increased by over 100%. The Department of Labor indexes

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[9] Swift & Company, *Year Book*, 1941, p. 11. In 1942, Swift put other segments of its inventory on Lifo.

[10] Lifo was adopted as of January 1, 1941, rather than at the beginning of the company's fiscal year, because Swift files its income tax return on a calendar-year basis.

[11] The data reported in this paragraph have been taken from the 1941 *Year Book* or computed from data there presented.

TABLE 7. PERCENTAGE PRICE INCREASES OF SELECTED COMMODITY GROUPS: OCTOBER, 1941, OVER DECEMBER, 1940

Price Index	*December 1940*	*October 1941*	*% Increase October, 1941, over December, 1940*
U.S. Department of Agriculture Index of Prices Received by Farmers (1909–1914 = 100):			
Combined Index	101	139	38%
Selected Components:			
Chicken and Eggs	122	146	20
Cottonseed	107	226	111
Dairy Products	128	145	13
Meat Animals	111	157	41
U.S. Department of Labor Index of Wholesale Prices (1926 = 100):			
Livestock and Poultry	73	95	30
Meats	77	94	22
Hides and Skins	99	113	14

SOURCE: U.S. Department of Commerce, *Survey of Current Business* (except for Cottonseed which was computed from U.S. Department of Agriculture, *Crops and Markets* and *Index Numbers of Prices Received by Farmers, 1910-1943*).

show smaller price rises than the Department of Agriculture indexes because the Labor indexes include some processed goods.

So far as the size of inventory profits and losses is concerned, Swift is not cited as a typical case, but rather as an illustration of unusually severe inventory fluctuations. For the vast majority of companies inventory profits and losses are much smaller in relation to other components of profits.

Department stores, the only industry for which we have been able to determine the effect of Lifo on net income over a period of years, provide an interesting contrast with Swift, since the average price fluctuations affecting department store inventories have been much less pronounced than those confronting Swift. So far as we have been able to determine, approximately 45 companies operating department and specialty stores adopted Lifo for a large part of their inventories in 1941, although the legality of the method for department stores remained in doubt until 1947. Partly because of this doubt department store records have been kept in a manner that permitted income to be computed with and without the Lifo adjustment; some companies have actually published double sets of net income and inventory figures.

With the assistance of the School's Bureau of Business Research we have been able to secure net income and inventory data for the period from January 31, 1941, to January 31,

TABLE 8. EFFECT OF LIFO ON 18 COMPANIES OPERATING DEPARTMENT STORES*: 1941-1947

(Dollar figures in thousands)

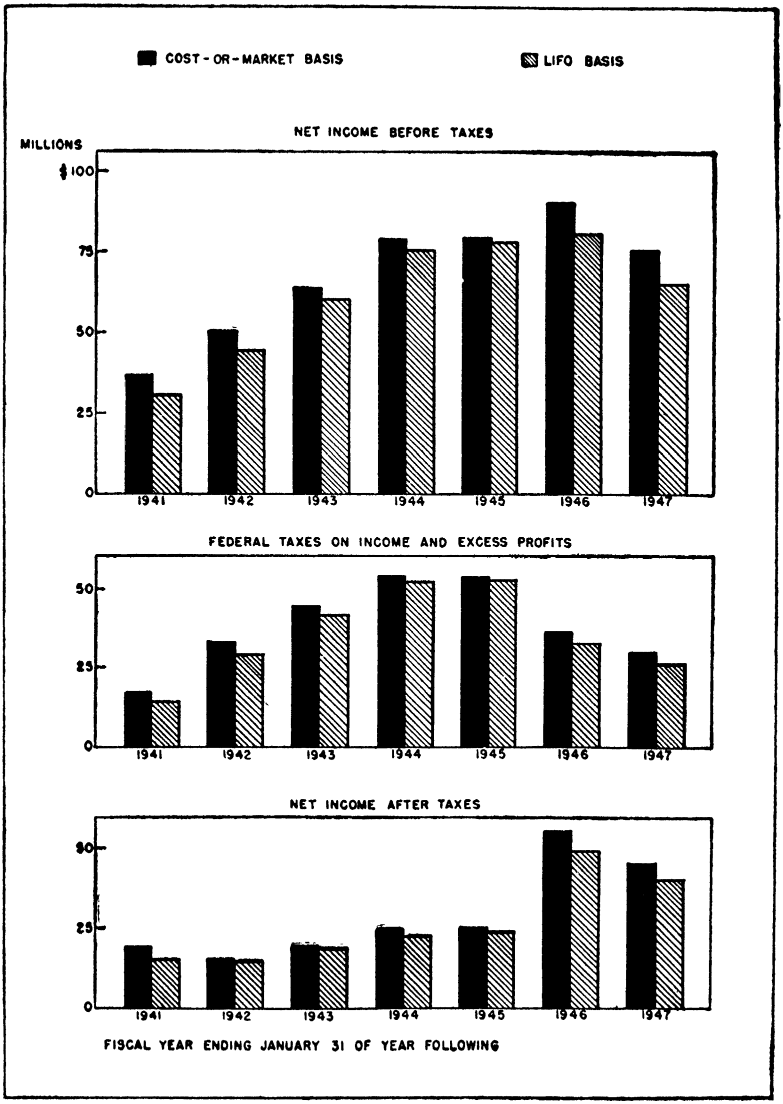
Year†	(*1*) *Lower-of-Cost-or-Market Method*	(*2*) *Lifo Method*	(*3*) *Reduction Arising from Lifo* *Amount* (*1*) − (*2*)	(*4*) *Reduction Arising from Lifo* *Percentage* (*3*) ÷ (*1*)
	NET INCOME BEFORE TAXES			
1941	$ 37,310	$ 30,935	$ 6,375	17.1%
1942	50,339	44,032	6,307	12.5
1943	64,443	61,580	2,863	4.4
1944	78,853	75,509	3,344	4.2
1945	79,742	77,037	2,705	3.4
1946	91,984	82,092	9,892	10.8
1947	76,570	66,276	10,294	13.4
Total	$479,241	$437,461	$41,780	8.7
	FEDERAL INCOME AND EXCESS PROFITS TAXES			
1941	$ 17,905	$ 14,076	$ 3,829	21.4%
1942	33,635	28,449	5,186	15.4
1943	44,495	42,472	2,023	4.5
1944	54,683	52,030	2,653	4.9
1945	54,381	52,676	1,705	3.1
1946	36,322	32,511	3,811	10.5
1947	29,991	26,033	3,958	13.2
Total	$271,412	$248,247	$23,165	8.5
	NET INCOME AFTER TAXES			
1941	$ 19,405	$ 16,859	$ 2,546	13.1%
1942	16,704	15,584	1,120	6.7
1943	19,948	19,108	840	4.2
1944	24,170	23,478	692	2.9
1945	25,361	24,361	1,000	3.9
1946	55,662	49,581	6,081	10.9
1947	46,579	40,243	6,336	13.6
Total	$207,829	$189,214	$18,615	9.0

*In each of these firms sales of departments on Lifo constituted at least 75% of total sales.

†Fiscal year ended January 31 of year following; one firm closed its books July 31 of year following.

SOURCE: Bureau of Business Research, Harvard Business School.

Chart 2. Effect of Lifo Method on Net Income and Tax Provisions of 18 Companies Operating Department and Specialty Stores, 1941-1947



Source: Table 8, p. 32.

TABLE 9. PRICE INDEXES USED IN APPLYING LIFO TO DEPARTMENT STORES: 1941-1948

Department Groups	*Jan. 1941*	*Jan. 1942*	*Jan. 1943*	*Jan. 1944*	*Jan. 1945*	*Jan. 1946*	*Jan. 1947*	*Jan. 1948*
Piece Goods, Domestics, and Draperies	100.0	120.3	136.8	144.1	151.0	166.7	196.4	218.6
Shoes	100.0	108.7	119.2	122.2	124.6	131.1	160.6	190.3
Ladies' Underwear	100.0	116.7	131.3	136.3	145.0	147.0	158.8	178.2
Ladies' Outerwear and Girls' Wear	100.0	117.9	128.7	141.3	147.7	155.8	164.7	181.3
Men's and Boys' Wear	100.0	112.9	129.8	139.4	144.7	151.1	178.9	190.0
Furniture and Bedding	100.0	121.0	126.2	128.7	143.0	150.2	168.9	184.9
Home Furnishings	100.0	109.0	113.7	118.2	123.2	131.6	148.4	162.5
Major Appliances and Electrical Goods	100.0	118.1	121.8	127.5	134.6	139.6	157.9	170.1
Notions and Toilet Articles	100.0	110.2	112.7	113.7	121.2	120.5	124.6	140.5
Store Total	100.0	114.8	124.9	131.5	138.9	145.7	163.6	180.5

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Department Store Inventory Price Indexes," mimeographed, January 7, 1948 (1941-1947) and March 3, 1948 (1948).

1948, from 18 companies with more than 75% of their inventories on Lifo.[12] Additional data for inventories have been obtained from seven other Lifo companies, but some are less than 75% on Lifo. Questionnaires were sent to 46 companies known to have used Lifo; usable replies were received in the number indicated. While no statistical tests have been made as to the representativeness of our sample, there can be little doubt that these data are adequate to illustrate the effect of

TABLE 10. FREQUENCY DISTRIBUTION OF PERCENTAGE REDUCTIONS IN NET INCOME ARISING FROM LIFO FOR 18 COMPANIES OPERATING DEPARTMENT STORES*

Percentage Reduction	*Number of Companies* *1941-1947,*† *Inclusive*	*1941*†	*1946*†	*1947*†
	NET INCOME BEFORE TAXES			
0% - under 4%	2	0	1	0
4 - 8	9	0	6	5
8 - 12	3	2	5	3
12 - 16	4	4	5	4
16 - 20	0	6	0	4
20 - 24	0	3	0	0
24 - 28	0	0	0	1
28 - and over	0	3‡	1‡	1‡
Total	18	18	18	18
	NET INCOME AFTER TAXES			
0% - under 4%	0	0	1	0
4 - 8	11	3	7	5
8 - 12	4	5	4	3
12 - 16	3	3	5	4
16 - 20	0	3	0	3
20 - 24	0	0	0	1
24 - 28	0	2	0	1
28 - and over	0	2‡	1‡	1‡
Total	18	18	18	18

*In each of these firms sales of departments on Lifo constituted at least 75% of total sales.

†Fiscal year ended January 31 of year following; one firm closed its books July 31 of year following.

‡In each of the individual years there were one or more firms for which the reduction in net income was more than 28%. For net income before taxes for 1941, there were reductions of 35.5%, 38.4%, and 40.6%; for 1946, 42.0%; and for 1947, 56.2%. For net income after taxes for 1941, there were reductions of 34.1% and 37.7%; for 1946, 44.0%; and for 1947, 55.1%.

SOURCE: Bureau of Business Research, Harvard Business School.

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[12] Almost all these companies had 90% or more of their inventories on Lifo.

TABLE 11. EFFECT OF LIFO ON END-OF-YEAR INVENTORY OF 18 COMPANIES OPERATING DEPARTMENT STORES: 1940-1947

(Dollar figures in thousands)

	Inventories		*Annual Reduction in Inventories Arising from Lifo*†		*Cumulative Reduction in Inventories Arising from Lifo*	
*Year**	*Lower of Cost or Market*	*Lifo*	*Amount*	*Percentages*‡	*Amount*	*Percentages*‡
1940	$ 63,441	$ 64,896	($1,455)[a]	(2.3%)[a]	($1,455)[a]	(2.3%)[a]
1941	86,349	81,159	6,645	7.7	5,190	6.0
1942	84,423	73,064	6,169	7.3	11,359	13.4
1943	87,257	73,060	2,838	3.3	14,197	16.3
1944	83,918	66,380	3,341	4.0	17,538	20.9
1945	97,485	77,186	2,761	2.8	20,299	20.8
1946	138,562	108,487	9,776	7.1	30,075	21.7
1947	148,186	107,906	10,205	6.9	40,280	27.2

*Fiscal year ended January 31 of year following; one firm closed its books July 31 of year following.

†Figures for the annual reduction in inventories as reported by individual firms were not always in precise agreement with the differences in net income arising from the application of the Lifo method. Consequently, the figures appearing on this table for the 18 companies cannot be reconciled exactly with the figures in Table 8.

‡Percentage of inventories at lower of cost or market.

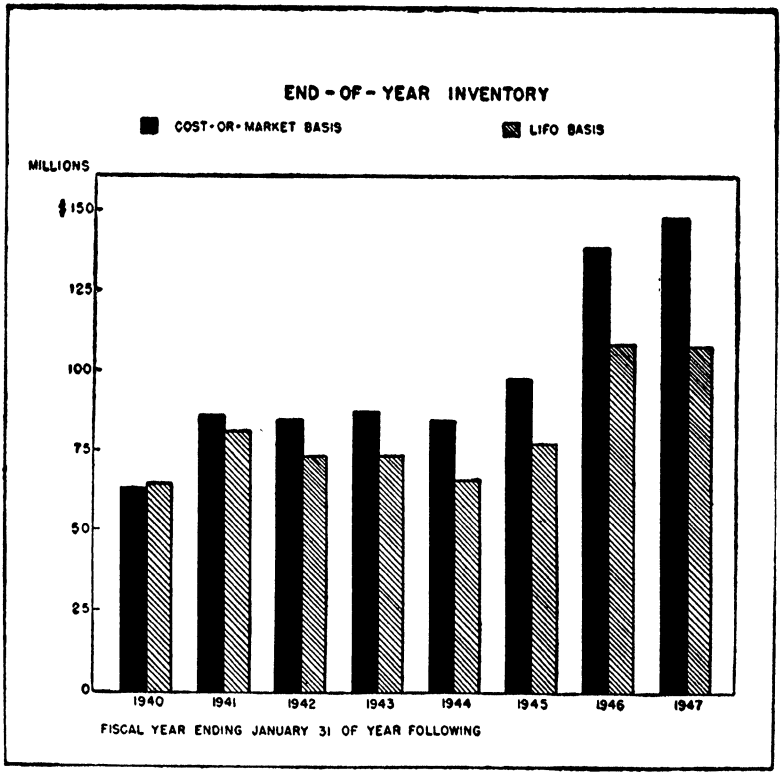
[a] Increase.

SOURCE: Bureau of Business Research, Harvard Business School.

Lifo on the profit and financial position of department stores during the past seven years.[13]

During the period 1941-1947, net income before taxes for the 18 stores submitting complete data was reduced by 8.7% by Lifo (Table 8 and Chart 2); the annual reduction in income ranged from 4.2% in 1945 to 17.1% in 1941, a year in which department store prices rose about 15% (Table 9). Net in-

CHART 3. EFFECT OF LIFO METHOD ON INVENTORY VALUATIONS OF 18 COMPANIES OPERATING DEPARTMENT STORES, 1940-1947



SOURCE: Table 11, p. 36.

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[13] The term *department stores* is here used in a general sense to include specialty stores not considered department stores in the strict sense by those in the trade.

come after taxes for the same stores was reduced by 9.0% with the annual reduction ranging from 4.2% in 1943 to 13.6% in 1947. Percentage reductions in tax payments were of comparable size: 8.5% for the seven-year period, with an annual range from 3.1% in 1945 to 21.4% in 1941.

Frequency distributions showing the percentage reduction in net income before and after taxes for the seven-year period and for the years of largest price change, 1941, 1946, and 1947, are given in Table 10. Individual companies show a rather wide range of percentage reductions in net income, both for the seven-year period and for particular years. This dispersion can probably be attributed to variations in the types of inventories held by different companies and to different fluctuations in the physical inventories held.

As of January 31, 1948, the aggregate inventories of the 18 companies cited above were 27.2% smaller on a Lifo basis than on lower of cost or market (Table 11). The reductions in inventories for individual companies for the seven-year period range between 9.3% and 35.9% for the 18 companies submitting complete data (Table 12).

In industries other than department stores detailed data as to the quantitative effect of Lifo are scarce. For 1941, however, when a large number of companies shifted to Lifo, more information is available. Table 13 shows the effect of Lifo on inventories, on net income before and after taxes, and on taxes for a representative group of 27 companies in 1941. An examination of this table illustrates the great diversity in the effect of Lifo on the net income and inventories of these companies. This diversity is explained by a variety of factors, including the percentage of inventories to which Lifo is applied, the relative importance of inventory costs, especially of material costs, to companies in different industries, and price fluctuations during the year.

Some guide as to the bearing of these factors may be obtained from Tables 13 and 14. Table 13 shows the percentage of inventories on Lifo in 1941 for those companies disclosing this information; the range is all the way from 10% to 100% (or nearly 100%). As expected, companies with only a small percentage of their inventories on Lifo tend to show relatively

TABLE 12. FREQUENCY DISTRIBUTION OF CUMULATIVE REDUCTIONS IN INVENTORY VALUATION ARISING FROM LIFO FOR 18 COMPANIES OPERATING DEPARTMENT STORES

*Cumulative Percentage Reduction in Inventories: 1940-1947**	*Number of Companies†*
0% - under 4%	0
4 - 8	0
8 - 12	1
12 - 16	0
16 - 20	6
20 - 24	2
24 - 28	3
28 - 32	4
32 - 36	2
Total	18

*Fiscal year ended January 31 of year following; one firm closed its books July 31 of year following.

†In each of these firms sales of departments on Lifo constituted at least 75% of total sales.

SOURCE: Bureau of Business Research, Harvard Business School.

small reductions in inventories and income on account of Lifo (e.g., The National Supply Company and the Carnation Company), while companies with most of their inventories on Lifo tend to show larger reductions (e.g., petroleum companies and The Kendall Company). The effect of price changes is crudely indicated by Table 14, which presents the percentage change in wholesale prices for selected commodities from the last quarter of 1940 to the last quarter of 1941. The Kendall Company and meat packers show relatively large reductions in inventories and income, partly because of the pronounced price rises in cotton and meat, whereas the effect of Lifo is much smaller for, say, companies with metal and lumber inventories. Other similar comparisons can be made from Tables 13 and 14, but they need not be spelled out in detail.

SUMMARY

Inventory profits and losses for the corporate economy as a whole are very large in years of substantial price changes. The Department of Commerce inventory valuation adjustment has exceeded $2 billion in seven years since 1929, and in

TABLE 13. EFFECT OF LIFO ON 27 MANUFACTURING COMPANIES ADOPTING LIFO IN 1941

Company	*% of Total Inventories on Lifo*	*Reduction from Lifo as % of Figure on Non-Lifo Basis*			
		Inventories	*Net Income before Taxes*	*Taxes*	*Net Income after Taxes*
Carnation Co.	10.8%	2.8%	7.3%	10.3%	4.5%
Libby McNeill & Libby	46.0	4.8	8.5	10.1	5.7
Armour & Co.	14.7	4.6	19.4	17.6	20.1[a]
John Morrell & Co.	27.9	14.4	46.3	61.5	39.2
Swift & Co.	53.3[b]	14.7[c]	45.6	63.1	29.6[a]
Wilson & Co., Inc.	13.5	5.5	19.3	36.2	8.9
Kendall Co.	83.4	18.0	42.6	55.2	21.6
International Shoe Co.	...	8.2	23.8	42.9	13.9
A. C. Lawrence Leather Co.	...	13.1	25.8	27.8	24.9
Melville Shoe Corp.	85.7	10.5	14.4	24.1	7.0
Ohio Leather Co.	75.0[d]	5.6	23.6	33.6	19.4
Gen. Tire & Rubber Co.	...	8.6	15.3	19.6	11.3
Weyerhaeuser Timb. Co.	...	16.5	8.8	12.0	5.2
Kimberly-Clark Corp.	36.7	1.6	2.3	3.3	1.3[e]
Mead Corp.	...	3.4	5.0	8.0	2.6[e]
Atlas Powder Co.	...	3.5	2.8	3.1	2.2
Glidden Co.	...	6.7	21.1	36.4	13.1
W. H. Barber Co.	100.0[f]	13.0	19.2	31.6	11.9
Humble Oil & Refin. Co.	72.8	4.4	3.8	6.5	3.2
Standard Oil Co. (Ky.)	96.4[g]	14.5	14.7	21.7	8.2
Stand. Oil Co. (Ohio)	81.7	10.7	10.5	13.6	6.5
Republic Steel Corp.	...	6.4	6.6	7.2	5.5
U.S. Steel Corp.	...	4.9	6.0	8.3	3.5
American Rad. & Stand. San. Corp.	55.0	4.2	6.1	7.9	3.8
Crane Co.	64.0	4.5	7.1	8.8	4.3
National Supply Co.	10.1	0.4	1.0	1.7	0.5
Amer. Brake Shoe Co.	...	5.9	7.9	10.9	4.6

[a] Before special charges. [b] % of domestic inventories on Lifo. [c] Includes effect of adopting method similar to Lifo for Canadian subsidiary. [d] Estimated from description of products on Lifo. [e] Estimated using average tax rate of 72%. [f] Note to bal. sheet: "Inventories . . . priced [at] lower of cost (last-in first-out principle) or market." [g] Materials and supplies (3.6%) at cost; remainder with minor exceptions on Lifo.

SOURCE: Annual Stockholder Reports.

TABLE 14. PERCENTAGE PRICE INCREASES OF SELECTED COMMODITIES: OCTOBER-DECEMBER, 1941, OVER OCTOBER-DECEMBER, 1940

Commodity	*Percentage Increase: Last Quarter, 1941, over Last Quarter, 1940*
Grains	30%
Fruit and Vegetables	26
Meat Animals	37
Cotton	69
Hides, Packers	11
Rubber (Ribbed Smoked Sheets)	12
Pulp, Sulphite	7
Wholesale Chemical and Allied Products	17
Crude Petroleum	16
Wholesale Gasoline	33
Coke	31
Pig Iron (Valley)	4
Tin	3
Zinc	12
Copper	0
Steel (Composite, Finished)	0

SOURCE: Computed from U.S. Department of Commerce, *Survey of Current Business;* and U.S. Department of Agriculture, *Crops and Markets.*

1946 and 1947 it exceeded $5 billion. This adjustment can be accepted as an approximation of the size of inventory profits and losses for the non-Lifo segment of the corporate economy.

The size of inventory profits varies greatly from company to company and industry to industry. In general, the most important factors determining the relative size of inventory profits and losses are: the size of inventories in relation to net worth or total assets; the relationship of inventory costs (especially material costs) to selling prices; and the degree of fluctuation in inventory prices. In an industry such as meat packing in which inventories are large relative to other assets, sales markups are relatively low, and price fluctuations are wide, inventory profits and losses (if not removed from income) often dominate the cyclical flow of reported profits. In other industries in which these conditions do not hold, fluctuations in inventory prices have a negligible effect on reported profits.

CHAPTER III

Extent of Use of Lifo

MOST companies value their inventories by methods which reflect price fluctuations in inventory values, and hence in income, with time lags usually not exceeding a few months. The chief exceptions are the companies which value their inventories on Lifo and, to a much lesser degree, on other related methods. As Chapter II has shown, the method of inventory valuation employed may determine whether inventory profits are large or small, or even whether a sizable loss or profit is reported. Any significant attempt to compare the profit performance of different companies or of different segments of the economy must therefore inquire into the procedures employed in valuing inventories.

The critical question is the extent to which the Lifo method is used. Until 1939 it probably was safe to assume that the use of Lifo was negligible, except in very restricted areas of the economy — chiefly petroleum refining, tanning, and the processing of nonferrous metals. Since 1939, however, the method is known to have spread widely, as to both the number of companies employing it and the industrial areas in which it is applied. Little precise information is available, however, concerning the extent of its current use.

Several recent studies give some indication of the degree to which corporations have shifted from traditional methods of inventory valuation to Lifo. The National City Bank, for instance, reported in 1947 that:

> An increasing number of companies have obtained permission from the Commissioner of Internal Revenue to adopt this method [Lifo] for tax returns, and of the 100 largest American manufacturing corporations, based upon volume of sales last year, 36, representing 38 per cent of the total sales of the group, use LIFO in whole or in part. The remaining 64 value inventories on the general basis of "cost or market whichever lower,"

with various modifications and with special inventory reserves in a number of cases.[1]

A survey of 525 corporate reports by the American Institute of Accountants, covering fiscal years ending within the period July, 1946, through June, 1947, reported that 75 of these companies used Lifo in whole or in part.[2] A year later 92 of these 525 companies were reported to be using Lifo.[3]

While these studies indicate that Lifo can no longer be regarded as of negligible importance, they do not show in detail the extent and distribution of its use. This information is needed for many economic analyses, especially for estimates of the significance of national income and profits data. Likewise the businessman, banker, financial analyst, or investor cannot appraise the profit performance of companies in many industries without knowledge as to their inventory valuation procedures.

The objective of this chapter is to present this information. The chapter examines variations in the use of Lifo from industry to industry and among different size classes of corporations. Appendix A presents supplementary information on the use of Lifo by most large manufacturing companies known to have adopted the method. As a necessary preliminary, however, the first section of the chapter discusses the degree to which corporations have disclosed their inventory valuation practices. The problems encountered in assembling data on Lifo inventories and in appraising the reliability of such data can be understood only with this background information.

DEGREE OF DISCLOSURE OF INVENTORY METHODS

Unsatisfactory corporate reporting recently has been roundly criticized by many accounting authorities. For instance, Mr. George D. Bailey, the recently retired president of the American Institute of Accountants, stated in the opening paragraph of the 1948 Dickinson lectures:

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[1] The National City Bank of New York, *Monthly Letter on Economic Conditions,* May, 1947, p. 54.

[2] American Institute of Accountants, *Accounting Survey of 525 Corporate Reports,* 1948, p. 15.

[3] American Institute of Accountants, *Accounting Trends in Corporate Reports,* 1949, p. 23. This volume reports that 79 rather than 75 companies actually had been on Lifo in the previous year but that four of these companies had not disclosed their use of Lifo. It is, of course, possible that still other companies were using Lifo without disclosing this fact.

> By and large, the present reporting of corporation activity and corporation income is not satisfactory. It is not satisfactory either to the corporations or to the public. The corporations are trying to find better ways of telling about themselves so that there will be a better understanding of corporate workings and a better understanding of corporate profits. The public still finds the information inadequate and unconvincing — insufficient for its purposes. This is not good; and if the condition is allowed to continue, it could constitute a serious threat to our American system of free enterprise. This is a strong statement, but I do not think it exaggerates.[4]

With special reference to inventories Mr. Carman G. Blough, Director of Research of the American Institute of Accountants, comments in his column in the *Journal of Accountancy* on the Institute's Accounting Survey:

> The startling thing about this study was the large number of companies that did not mention the method or methods which they follow in determining inventory cost. It may be a valid assumption that most of the companies that did not indicate a method followed the Fifo or perhaps the "average cost" method and assumed that the reader would make that assumption if no description were included. The reader may possibly judge the reasonableness of this assumption on the basis of his own experience.
>
> It should be understood that many of the companies listed in the summary as mentioning the use of Lifo did not apply Lifo to their entire inventory. For example, John Morrell & Co. and Rath Packing Company in the meat packing industry inventoried on the Lifo basis only pork products (including live hogs). Swift & Company, on the other hand, indicated that all but a small portion of its products were inventoried on the Lifo basis. In the textile field, Bigelow-Sanford Carpet Company, Inc. said it used Lifo for material costs. Burlington Mills Corporation applied it to less than $1,000,000 of over $32,000,000 total inventory, and Dwight Manufacturing Company applied it to raw cotton and cotton content of work in

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[4] George D. Bailey, "Problems in Reporting Corporation Income," *Harvard Business Review*, September, 1948, p. 513.

> process and finished goods. Cannon Mills Company, on the other hand, was completely on the Lifo basis.
>
> Even if, in order to determine the extent to which Lifo companies had cushioned themselves against rising prices, the reports of each individual company were examined, it would be unlikely that any valid conclusions on this point could be made. In making any such determination it would be important to know when the individual companies started to use Lifo. This information is only infrequently mentioned except in the year when the method is adopted, and, furthermore, very few companies mentioning the use of Lifo specify the portion of their total inventory to which the method is applied.[5]

A few additional illustrations of inadequate corporate reporting in the area of inventory valuation will help point up the difficulties encountered in preparing statistical estimates of the use of different inventory methods. Some corporations report no information whatsoever as to the basis on which inventories are valued; among large companies the Aluminum Company of America and The Great Atlantic and Pacific Tea Company are cases in point.[6] While a complete lack of reference in annual reports to the basis of inventory valuation is exceptional, numerous other companies state that their inventories are valued at cost, or at lower of cost or market, but they do not report how "cost" or "market" is defined. The American Institute survey for years ending during the period from July, 1946, through June, 1947, indicates that 54% of the companies examined did not report the method used in determining cost, and 80% did not tell how market values were established. (Some 16% of the Institute sample, however, valued inventories at cost, and hence presumably did not employ market values at all.)

Failure to disclose the definition of cost would not be of critical importance if it reasonably could be assumed that cost means Fifo, average, or some related cost concept; differences in valuation large enough to distort balance sheets and income statements seriously would not occur frequently under such

[5] Carman G. Blough (editor), "Current Accounting Problems — Use of Lifo by Industry Groups," *Journal of Accountancy*, July, 1948, pp. 68-69.

[6] Neither is required to submit annual reports to the Securities and Exchange Commission, and neither has filed stock exchange listing applications; hence information is not available from these sources.

circumstances. But, when cost may mean Lifo as well as Fifo or any intermediate method of valuation (including standard costs lagging well behind swiftly advancing prices), the simple statement that inventories are valued at lower of cost or market is not very helpful.

While cost ordinarily does not mean Lifo cost unless so stated, occasionally a Lifo company merely describes its inventory valuation method as lower of cost or market. The annual reports of the Union Carbide and Carbon Corporation, 1943-1947, for instance, carry the item, "Inventories (cost or market, whichever lower)," without further comment in the financial statements or notes thereto as to the valuation procedure. But the 1942 annual report indicates that Lifo was used "with respect to all inventories, other than supplies, of United States subsidiaries," and the accountants' certificates, 1943-1947, report no change in inventory valuation procedures.

Another difficult problem of interpretation is presented by companies which report inventories at less than market, not in excess of lower of cost or market, not in excess of cost, or some similar phrasing; 18 such companies were included in the Institute's sample. Some companies which have so described their inventory procedures are known to have been essentially on a normal-stock or Lifo basis for at least part of their inventories.[7] A leading accountant, when asked as to the meaning of such "less than" descriptions, commented to the author that the companies so describing their inventory methods probably have secret reserves not disclosed in their balance sheets.

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[7] For instance, in 1937, The Atlantic Refining Company's annual report showed crude and refined oils valued "at lower than market." A footnote to the 1938 statement, however, disclosed the company had adopted Lifo January 1, 1933, although no report from 1933 through 1937 had disclosed the fact. Again, annual reports of Sun Oil Company from 1933 through 1941 make no mention that the company is using Lifo, although the 1932 report stated that "During the year we changed our system of handling our oil stocks on the books of the Company, whereby current productions [sic] and sales largely absorbed the inventory price fluctuations due to crude price changes." Also, form 10-K filed with the Securities and Exchange Commission for 1935 stated, "The Crude Oil taken out of stock for shipment or that used in plants is taken from the most recent purchases." The auditor's certificates, 1933-1941, make no mention of any change in the principles applied in valuing inventories, thereby indicating that the same procedures were used throughout the period.

Other examples of "less than" methods are the Singer Manufacturing Company with inventories stated as "less reserve, at values not in excess of cost" without disclosing the size of the reserve, and the General Electric Company which describes its valuation procedures as follows:

> . . . They [inventories] are valued, in accordance with long established practice, at the lower of cost (which does not include certain indirect manufacturing expenses) or market, less reserves. Inventory reserves make provision for possible losses on inactive and excess stocks, for possible price declines, and for unrealized intercompany profits.[8]

The size of the reserve is not disclosed in reports to stockholders, but information reported to the Securities and Exchange Commission shows that it ranged from $23.9 million in 1939 to $94.2 million in 1947, amounting to about 20% of the inventory figure reported to stockholders during most years 1939-1947.

In passing, it should be noted that additional difficulties are encountered in compiling statistical data on inventories when one has to rely on secondary sources such as *Moody's Industrials*. *Moody's* does not report the method of inventory valuation used by many small and medium-size companies. For example, no information on inventory methods is reported for 12 of the 30 domestic companies classified as manufacturers of Lumber and Wood Products; these 12 companies were excluded from the sample. Likewise, the sample of 73 petroleum companies excludes on the same grounds 36 additional companies which were otherwise eligible. Most of these companies probably do not disclose their inventory methods, but occasionally at least *Moody's* fails to report information that has been disclosed. Of special importance for our study are instances in which *Moody's* fails to report the use of Lifo by companies which disclose its use in annual reports or prospectuses.[9] Such instances, fortunately, appear to occur relatively infrequently.

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[8] *Annual Report for Year Ended December 31, 1948.*

[9] To illustrate, the 1948 edition does not mention that The Atlantic Refining Company uses Lifo, although a footnote in the company's annual report states that Lifo has been used since 1933. *Moody's* does not show that the Northwestern Leather Company uses Lifo, but a 1945 prospectus reveals that the

(*Footnote continued on next page*)

Even when the use of Lifo is clearly reported, the extent of its use is often not disclosed. A company's entire inventory may be on Lifo; the principle may be applied only to certain components of cost (such as raw materials and the raw material content of work in process and finished goods, as distinct from labor and overhead); or only to certain raw materials (such as cotton, but not rayon or wool); or only to specific divisions of a company (such as a subsidiary which adopted Lifo before it was acquired by the parent company). Some corporations systematically disclose the extent of their use of Lifo, but many others present vague and inconclusive statements in their annual reports. Outstanding examples of unusually complete disclosure include the Standard Oil Company of California, the California Packing Corporation, and the American Radiator & Standard Sanitary Corporation. Standard Oil of California, after indicating that crude oil and products are on a Lifo basis, states in a footnote to its balance sheet:

> At December 31, 1947, inventories of these stocks were 24,597,561 barrels valued at $43,938,389, an average of $1.79 per barrel. At December 31, 1946 inventories of 24,060,530 barrels were valued at $36,230,129, an average of $1.51 per barrel. The higher average inventory rate in 1947 was due mainly to an increase in the proportion of higher cost products carried in inventory.[10]

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company had adopted it in 1941. Similarly, Atlas Plywood Corporation is revealed to be on Lifo by its 1944 auditor's certificate and a 1947 prospectus, but the use of Lifo is not mentioned by *Moody's* or, for that matter, in the company's annual reports to stockholders, except as indicated above. The company's published financial statements, including 1944, contain no description whatsoever as to how inventories are valued.

[10] Standard Oil Company of California, *Annual Report for Year Ending December 31, 1947*, p. 18.

The California Packing Corporation presents the following breakdown in its annual report for the year ended February 29, 1948:

Cost, on the basis of "last-in, first-out"	$22,256,062
Lower of cost or market, on the basis of "first-in, first-out"	3,778,958
Reserve for unrealized inventory losses based on market valuations	(180,000)
	$25,855,020
Materials and supplies, at the lower of cost or market	10,478,645
	$36,333,665

Most Lifo companies do not report anything like this amount of detail in their recurring annual reports.[11] Many companies simply state that certain inventories are on Lifo without revealing their nature or amount. Even when the value of Lifo inventories is disclosed, serious uncertainties remain. The price levels at which Lifo inventories are carried and their relation to current replacement costs are seldom disclosed; indeed, relatively few companies mention in their annual reports the date when Lifo was originally adopted. Even when this date is known, reliable estimates cannot be made of the current costs of Lifo inventories. Large errors are almost unavoidable in such estimates because Lifo inventories of identical goods, built up over a period of years, may be carried at widely different prices; the problem is further complicated by changes in the "mix" of Lifo products which take place over time. As William Blackie has remarked:

> [Lifo values] are . . . comprised of a heterogeneous collection of first-in costs as of a variety of earlier dates which, since it represents neither recent original cost nor replacement market — nor any other acceptable criterion of valuation — has no interpretable significance. In so far as it destroys the homogeneity of the underlying computations, the device, therefore, seriously impairs, even if it does not wholly destroy, the purposes of making a determination of the financial position.[12]

Accountants are not in agreement as to the proper remedy for this situation. Some accountants, especially those not sympathetic to the expansion of Lifo, contend that companies on Lifo should be required to disclose in their balance sheets the replacement costs of their Lifo inventories; in the last year or two several Lifo companies have reported the current cost

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As a third illustration of unusually complete reporting, the American Radiator & Standard Sanitary Corporation has shown the percentage or the dollar value of its Lifo inventories for every year since Lifo was adopted in 1941; in 1947 the replacement cost of these inventories was also shown.

[11] Reporting is usually more complete in the first year on Lifo. The auditors' certificate ordinarily discloses the aggregate effect of Lifo on ending inventory values and sometimes the value of Lifo inventories. When new public financing is undertaken prospectuses approved by the Securities and Exchange Commission generally include a detailed statement on inventory valuation policies.

[12] William Blackie, "What Is Accounting Accounting For — Now?" *N.A.C.A. Bulletin,* July 1, 1948, p. 1355.

of their Lifo inventories. Other accountants believe that the burdens placed on the reporting corporations by such a requirement would be disproportionate to the benefits derived from it.[13] We are not in a position to pass judgment on this highly technical question. But it is perfectly clear that many companies could greatly improve the disclosure of their inventory valuation procedures without encountering any severe clerical or administrative burdens.

EXTENT TO WHICH LIFO IS USED

Data Analyzed

Subject to the limitations of corporate disclosure, we have attempted to determine as carefully as possible the extent to which various inventory methods, especially Lifo, are currently employed. To this end, two samples of corporations have been analyzed, one large sample covering a broad range of industrial activities and a second set of smaller samples covering industries in which Lifo is known to be in fairly common use. While the primary objective in gathering these samples has been to determine the extent to which Lifo is employed, they serve incidentally to illustrate further the lack of uniformity in practice and in reporting pointed out in the preceding pages.

Sample I

Our first sample is similar in composition to that of the Institute except that inventory data have also been tabulated.[14] The data were drawn from *Moody's Industrials*, 1947 edition,[15] which contains reports for the fiscal year, 1946. Data were compiled for all domestic manufacturing, mining, and merchandising companies for which *Moody's* gives complete financial summaries covering more than two years; by this procedure a reasonably good cross section of the nation's largest companies in these industries has been included in the sample. Since the sample is presented only to illustrate the range of variation in the use of Lifo among major industrial groups, and not as a basis of a careful statistical analysis, more refined sampling techniques did not seem necessary. Reliance on *Moody's* as a source of information involves some risk of error as noted above; but, since only large companies are included in this sample, probably few Lifo companies have been erroneously classified.

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[13] For emphatic statements of differing points of view on this problem see *Journal of Accountancy*, letter from J. Harold Stewart, August, 1948, pp. 158-159, and the sharp interchange between Anson Herrick and Maurice E. Peloubet, December, 1948, pp. 492-495.

[14] The compilation of this sample was begun before the Institute's study was released, else we should not have undertaken it.

[15] *Moody's Manual of Investments, American and Foreign (Industrial Securities).*

Of the 475 companies included in the sample, 85 valued part of or all their inventories on Lifo; these 85 held inventories valued at $3.1 billion out of a total of $13.4 billion reported by all 475 companies (Table 15).[16] Seven companies which are known to employ the normal-stock method, with inventories of $171 million, were excluded from the Lifo group, although for many purposes they should be classified with the Lifo companies. The sample provides no basis for estimating what proportion of the total inventories of $3.1 billion held by Lifo companies actually was valued on Lifo, a point which is investigated in detail in our second set of samples.

On an industrial basis, at least for the companies in Sample I, Lifo is especially important in the following industries: meat packing, textiles and apparel, leather and its products, lumber and basic timber products, paper and allied products, petroleum, iron and steel companies, and nonferrous metals (processors and miners). It is also frequently used by department stores and manufacturers of chemicals and allied products and foods (other than meat packers) and beverages, although not to the same extent as in the first group of industries. Very little use of Lifo is reported by companies in other industries.

Sample II

Our second set of samples, designated as Sample II, has been collected in an effort to obtain more detailed data for the industries in which Lifo is known to be important and also a more complete tabulation of Lifo companies in other indus-

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[16] Two or three companies which reported a negligible use of Lifo have been excluded from the Lifo figures.

TABLE 15. USE OF LIFO BY 475 COMPANIES IN SAMPLE I

Industry	*Number of Companies* Total	*Number of Companies* Wholly or Partly on Lifo	*Inventories Held by ALL Companies (In thousands)*	*Inventories Held by Companies Wholly or Partly on Lifo* Amount (In thousands)	*Inventories Held by Companies Wholly or Partly on Lifo* % of Total Inventories
Trade	43	4	$1,706,279	$110,792	6.5
Department stores	10	3	313,435	92,194	29.4%
Mail order	3	0	556,649	0	0
Other trade	30	1	836,195	18,598	2.2
Mining	31	5	$389,482	$213,928	54.9
Nonferrous metals	18	5	327,798	213,928	65.3
Other mining	13	0	61,684	0	0
Manufacturing	401	76	$11,274,187	$2,735,326	24.3
Meat packers	5	4	320,142	286,361	89.4
Other food products	49	11	840,120	211,756	25.2
Beverages	7	2	396,340	178,850	45.1
Tobacco	12	1	1,331,074	14,258	1.1
Textiles and apparel	19	8	329,203	148,995	45.3
Leather and leather products	8	4	106,696	61,368	57.5
Rubber products	8	1	420,368	21,579	5.1
Lumber and timber basic products	5	2	47,543	18,679	39.3
Furniture and finished lumber products	3	0	12,498	0	0
Paper and allied products	14	5	157,755	81,331	51.6
Printing and publishing	6	0	20,826	0	0
Chemicals and allied products	46	8	999,678	196,656	19.7
Petroleum and coal products	32	16	1,328,839	856,872	64.5
Stone, clay, and glass products	17	0	114,127	0	0
Iron, steel, and their products	43	8	1,145,497	563,447	49.2
Nonferrous metals and products	14	3	290,824	48,052	16.5
Machinery and equipment	107	3	3,171,813	47,122	1.5
Other	6	0	240,844	0	0
All companies	475	85	$13,369,948	$3,060,046	22.9

tries. The remainder of this chapter, including all estimates of the aggregate dollar volume of Lifo inventories, is based exclusively on Sample II data. Where possible we have gathered sufficient data to estimate the inventories actually on Lifo (as distinct from the total inventories held by Lifo companies) and also the extent to which Lifo has been adopted by different size classes of companies in these industries. We have also tried to gather sufficient information to be able to estimate the value of the total Lifo inventories in the economy as of the end of 1947, but such estimates must be recognized as containing considerable margins of error. While a minimum figure for Lifo inventories can be determined with reasonable precision, we have no basis for estimating at all accurately the Lifo inventories not included in our sample.

Samples have been collected for the following industries in which Lifo is widely used: petroleum, iron and steel, food except meat packers, meat packers, textiles, nonferrous metals, chemicals, paper and pulp, leather and shoes, and lumber and wood products. Additional data are also presented for miscellaneous manufacturing companies and department stores known to be on Lifo. The coverage of the industry samples is undoubtedly uneven; some (e.g., meat packers, iron and steel, and petroleum), we believe, include most Lifo inventories in the industry because of the dominance of a relatively few large companies, while others (e.g., leather and shoes, and textiles) may be substantially less complete in their coverage.[17]

The ten industry samples have been compiled as follows. The companies included in each sample have been selected from industry lists contained in *Moody's Industrials* except for the iron and steel sample which was based on *Standard and Poor's Industry Survey.* The entire list of domestic companies appearing in these sources was included except for companies for which no information on methods of inventory valuation was reported. Where possible the financial data for the companies in the samples were obtained from stockholder reports and prospectuses, but occasional reliance on *Moody's* was necessary, especially for small companies.

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[17] The data for Sample II are for the year 1947, while Sample I data are for 1946. The choice of the year was governed by the availability of data when the samples were collected.

Several biases are evident from the method of selection of Sample II.

First, large companies are better represented than small companies. Most companies with assets of over $50 million are included, but the coverage of smaller companies is less complete. Any use of the samples to estimate industrial or national totals of Lifo inventories would have to make adjustment for this fact.

A second source of bias is that closely held companies are less likely to be listed in *Moody's* than widely held companies. The chief effect of this influence, however, is to reinforce the tendency of Sample II to include a more complete representation of large than small companies; no bias other than this is apparent.

A third possible bias is that the use of Lifo may be underestimated to the extent that we have had to rely on *Moody's* rather than annual reports. As indicated elsewhere, *Moody's* does not always report the use of Lifo, but this qualification appears to be minor. It is more likely to affect small than large companies since we have relied more heavily on *Moody's* for the data of small companies and errors are more probable in the reports on small companies.

SUMMARY STATEMENT ON USE OF LIFO SHOWN BY SAMPLE II DATA

The following main conclusions stand out from the ten industry samples summarized in Tables 16 and 17, supplemented by the special estimates for miscellaneous manufacturing companies and department stores.

(1) *Dollar value of Lifo inventories.* In the aggregate we estimate that the Lifo inventories held by manufacturing companies in Sample II totaled $2.5 billion, stated at their *book value* as of the end of 1947. This sum amounted to 9% of the national total of $28 billion for all manufacturers' inventories at the end of 1947.[18] *If allowance is made for the in-*

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[18] Some of the inventories in Sample II, especially those held by petroleum and nonferrous metals companies, are more properly classified as mining and

TABLE 16. SELECTED SUMMARY DATA FROM SAMPLE II

(Dollar figures in millions)

	Inventories End of 1947				
*Industry**	*Total All Companies*	*Total Lifo Companies*	*Estimated Lifo Inventories of Lifo Companies*	*% of Total Inventories of Lifo Companies to Total Inventories of All Companies*	*% of Estimated Lifo Inventories to Total Inventories of All Companies*
Petroleum	$1,679	$1,159	$770	69.0%	45.9%
Iron and steel	999	634	475	63.5	47.5
Food (except meat packers)	1,914	534	245	27.9	12.8
Meat packers	475	400	130	84.2	27.4
Textiles	577	414	165	71.8	28.6
Nonferrous metals	573	331	155	57.8	27.1
Chemicals	747	324	125	43.4	16.7
Paper and pulp	404	164	75	40.6	18.6
Leather and shoes	197	74	44	37.6	22.3
Lumber and wood	65	34	17	52.3	26.2
Total: ten industries	$7,630	$4,068	$2,201	53.3	28.8
Miscellaneous manufacturing companies	563	563	275	100.0	48.8
Total manufacturing companies	$8,193	$4,631	$2,476	56.5	30.2
Department and specialty stores		283	251	...	...
Total: all industries		$4,914	$2,727	...	...

* The coverage of these industries is described in the text.

complete coverage of Sample II and for the differences in price levels at which Lifo and non-Lifo inventories are valued, it seems safe to assume that, stated in 1947 prices, at least 13% of total manufacturers' inventories were on Lifo; the actual figure might have been as high as 17%. Since few companies have shifted to Lifo after 1947, this estimate may safely be applied to current inventory data. The concentration of Lifo inventories within the industries in which the method is widely used is, of course, much higher. For the most part, also, the goods on Lifo are subject to especially wide price fluctuations, so that for many pur-

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producing inventories rather than as manufacturing inventories. Since the total inventories of companies engaged primarily in mining and producing are a very small percentage of total manufacturers' inventories, however, the above percentages would not be significantly changed if they were in terms of a denominator including all mining and extractive inventories as well as manufacturing inventories.

Table 17. Complete Summary Data of Sample II Companies, by Industrial Groups and Asset Classes

(Dollar figures in thousands)

	Non-Lifo Companies			*Lifo Companies*			
Asset Size Classes (In millions)	*Number of Companies*	*Total Assets End of 1947*	*Total Inventories End of 1947*	*Number of Companies*	*Total Assets End of 1947*	*Total Inventories End of 1947*	*% of Total Inventories of Lifo Companies to Total Inventories of All Companies*
Petroleum							
0 – Under 10	13	$60,659	$5,075	7	$33,745	$4,510	47.1%
10 – 50	22	498,168	29,322	4	102,603	13,376	31.3
50 – 100	4	226,553	12,707	1	69,172	12,037	48.6
100 – 500	4	513,530	49,531	9	2,297,675	317,959	86.5
500 and over	3	2,912,052	424,004	6	7,560,313	810,809	65.7
Total	46	$4,210,962	$520,639	27	$10,063,508	$1,158,691	69.0
Iron and Steel							
0 – Under 10	1	$8,689	$2,229	0	...	...	0.0
10 – 50	8	209,850	64,550	1	$25,037	$1,557	2.4
50 – 100	4	255,455	57,291	0	...	...	0.0
100 – 500	5	1,020,833	240,845	3	1,088,751	178,941	42.6
500 and over	0	...	...	2	3,111,371	453,476	100.0
Total	18	$1,494,827	$364,915	6	$4,225,159	$633,974	63.5
***Food** (except Meat Packers)*							
0 – Under 10	60	$291,486	$70,227	1	$1,378	$702	1.0
10 – 50	53	1,258,848	381,798	11	262,528	100,450	20.8
50 – 100	10	609,300	219,694	5	376,954	137,437	38.5
100 – 500	12	2,204,071	708,273	4	767,606	295,175	29.4
500 and over	0	...	...	0	...	...	...
Total	135	$4,363,705	$1,379,992	21	$1,408,466	$533,764	27.9

Meat Packers							
0 – Under 10	6	$24,732	$7,241	1	$4,616	$1,119	13.4
10 – 50	3	59,722	20,331	4	118,932	32,591	61.6
50 – 100	1	93,670	47,612	0	...	...	0.0
100 – 500	0	...	...	3	997,835	366,131	100.0
500 and over	0	...	...	0	...	...	...
Total	10	$178,124	$75,184	8	$1,121,383	$399,841	84.2
Textiles							
0 – Under 10	15	$89,715	$33,400	8	$53,342	$13,632	29.0
10 – 50	8	124,925	54,952	17	435,710	159,659	74.4
50 – 100	1	56,360	16,774	6	419,987	136,447	89.1
100 – 500	1	117,579	58,510	3	367,203	103,876	64.0
500 and over	0	...	...	0	...	...	...
Total	25	$388,579	$163,636	34	$1,276,242	$413,614	71.7
Nonferrous Metals							
0 – Under 10	20	$99,573	$23,532	0	...	...	0.0
10 – 50	13	283,946	79,351	8	$211,283	$39,065	33.0
50 – 100	3	186,050	33,379	4	277,637	67,420	66.9
100 – 500	3	525,384	104,924	1	255,568	77,253	42.4
500 and over	0	...	...	2	$1,178,073	$147,829	100.0
Total	39	$1,094,953	$241,186	15	$1,922,561	$331,567	57.9
Chemicals							
0 – Under 10	6	$27,125	$5,822	0	...	...	0.0
10 – 50	20	537,315	97,728	5	$128,548	$27,540	22.0
50 – 100	6	453,245	107,515	0	...	...	0.0
100 – 500	2	544,445	69,214	4	821,084	184,913	72.8
500 and over	1	1,090,793	142,572	1	649,109	111,971	44.0
Total	35	$2,652,923	$422,851	10	$1,598,741	$324,424	43.4

(*Continued on pp. 58-59*)

TABLE 17 (*Continued*)
COMPLETE SUMMARY DATA OF SAMPLE II COMPANIES, BY INDUSTRIAL GROUPS AND ASSET CLASSES

(Dollar figures in thousands)

Asset Size Classes (In millions)	*Non-Lifo Companies*			*Lifo Companies*			*% of Total Inventories of Lifo Companies to Total Inventories of All Companies*
	Number of Companies	*Total Assets End of 1947*	*Total Inventories End of 1947*	*Number of Companies*	*Total Assets End of 1947*	*Total Inventories End of 1947*	
Paper and Pulp							
0 – Under 10	16	$96,730	$25.066	3	$20,852	$5,960	19.2
10 – 50	29	567,877	117,594	7	199,975	39,404	25.1
50 – 100	4	233,350	41,553	5	341,492	65,890	61.3
100 – 500	2	261,643	56,172	1	278,586	52,653	48.4
500 and over	0	...	...	0	...	...	...
Total	51	$1,159,600	$240,385	16	$840,905	$163,907	40.5
Leather and Shoes							
0 – Under 10	19	$88,992	$45,116	4	$22,285	$8,661	16.1
10 – 50	6	99,355	45,206	3	70,271	21,876	32.6
50 – 100	1	73,941	32,362	0	...	...	0.0
100 – 500	0	...	..	1	108,730	43,337	100.0
500 and over	0	...	...	0	...	...	...
Total	26	$262,288	$122,684	8	$201,286	$73,874	37.6
Lumber and Wood							
0 – Under 10	5	$39,660	$10,824	2	$12,372	$1,551	12.5
10 – 50	6	109,462	19,892	3	54,833	14,376	42.0
50 – 100	0	...	...	1	50,060	12,457	100.0
100 – 500	0	...	...	1	195,148	6,067	100.0
500 and over	0	...	...	0	...	...	...
Total	11	$149,122	$30,716	7	$312,413	$34,451	52.9

Total: Ten Manufacturing Industries							
0 – Under 10	161	$827,361	$228,532	26	$148,590	$36,135	13.7
10 – 50	168	3,749,468	910,724	63	1,609,720	449,894	33.1
50 – 100	34	2,187,924	568,887	22	1,535,302	431,688	43.1
100 – 500	29	5,187,485	1,287,469	30	7,178,186	1,626,305	55.8
500 and over	4	4,002,845	566,576	11	12,498,866	1,524,085	72.9
Total	396	$15,955,083	$3,562,188	152	$22,970,664	$4,068,107	53.3
Miscellaneous Manufacturing Companies							
0 – Under 10	...	...	...	2	$15,458	$4,188	...
10 – 50	...	...	...	15	297,576	111,707	...
50 – 100	...	...	...	7	531,377	157,242	...
100 – 500	...	...	...	7	1,167,335	289,496	...
500 and over	...	...	...	0	...	...	...
Total	...	...	...	31	$2,011,746	$562,633	
Total: All Manufacturing Companies							
0 – Under 10	...	...	...	28	$164,048	$40,323	...
10 – 50	...	...	...	78	1,907,296	561,601	...
50 – 100	...	...	...	29	2,066,679	588,930	...
100 – 500	...	...	...	37	8,345,521	1,915,801	...
500 and over	...	...	...	11	12,498,866	1,524,085	...
Total	...	...	...	183	$24,982,410	$4,630,740	...

poses a mere statement of the percentage of total inventories on Lifo does not indicate the full economic significance of the shift to Lifo.

Department and specialty stores are the only nonmanufacturing area in which Lifo is extensively used. We estimate that such stores held Lifo inventories of about $250 million as of January 31, 1948, or about 9% of total "general merchandise" inventories, as estimated by the Department of Commerce, and about 2% of the total inventories held by all retail stores.

The Sample II data on which these estimates are based can be summarized as follows. Lifo companies in Sample II held total inventories valued at $4.9 billion at the end of 1947 (Table 16). Of this total, $4.1 billion were held by companies in the ten manufacturing industries, $0.5 billion by the miscellaneous manufacturing companies, and $0.3 billion by department and specialty stores on Lifo.[19] While available data are not adequate to permit a precise breakdown of these inventories into their Lifo and non-Lifo components, our best estimate is that the book value of Lifo inventories held by manufacturing companies amounts to about $2.5 billion, or 54% of the total inventories held by Lifo companies.[20] We have no basis for estimating the amount of Lifo inventories not included in Sample II, but they probably are relatively small in comparison with those in the sample. Excluded Lifo companies are mostly small and closely held, though they may be fairly numerous in some industries such as textiles, leather and shoes, and lumber and wood. But it is hard to believe that the aggregate Lifo inventories of companies outside the sample would exceed, say, $250 million, or about 10% of those in the sample.

In interpreting the above figures it must be stressed that the Lifo inventories are stated at their *book values*, a large but indeterminate percentage at prewar price levels. If Lifo inventories were restated in terms of 1947 prices — to place them on a comparable basis with non-Lifo inventories — the $2.5 billion estimate would be greatly increased. While no careful attempt has been made to estimate the degree of this increase in view of the extremely inadequate data, it probably would come to at least 50% of the book valuation of Lifo inventories.

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[19] Four or five of the manufacturing groups include some companies engaged in mining and producing activities.

[20] The basis for this estimate, which for some industries is very crude, is described in the detailed analysis of the data for individual industries reported in Appendix A.

(2) *Concentration of Lifo among large companies.* One of the most striking findings revealed by Table 17 is the systematic and pronounced tendency for the use of Lifo to be concentrated among large companies. The summary data on total inventories for the ten industries show a steady gradation among size classes. Less than 15% of the total inventories of companies with assets of under $10 million are held by Lifo companies. This figure rises consistently to nearly 73% for companies with assets of more than $500 million. The same general pattern appears for the separate industries, but with a somewhat less even progression.

An equally consistent pattern is found when the data are tabulated by numbers of companies rather than by amounts of inventories held. The distribution by numbers of companies varies by only a few percentage points in each asset class from that for total inventories.

(3) *Industrial concentration of Lifo.* The use of Lifo is still highly concentrated in a limited number of industries despite its rapid expansion during the past decade. Based on our Sample II data, approximately 85% to 90% of manufacturing inventories on Lifo appear to be held by companies in the ten industries for which we have collected special samples. Even within these industries the concentration of the method is highly uneven; in the textile industry, for instance, the method has been extensively adopted by cotton manufacturers, whereas few rayon producers use it. In nonmanufacturing activities Lifo is restricted almost entirely to department and specialty stores although isolated applications are found in a few other areas.

Data as to the percentage of inventories on Lifo in our ten industry samples are of limited value, since the percentages depend on the relative coverage of small and large companies in the samples and on the way in which the industrial groups

TABLE 18. YEAR IN WHICH SAMPLE II COMPANIES ADOPTED LIFO

Industry	*Before 1939*	*1939*	*1940*	*1941*	*1942*	*1943*	*1944*	*1945*	*1946*	*1947*	*Total*
Petroleum	6	1	1	8	2	0	0	1	1	7	27
Iron and steel	0	0	0	4	1	0	0	0	0	1	6
Food (except meat packers)	0	2	0	5	9	2	2	0	0	1	21
Meat packers	0	0	0	6	0	0	0	0	0	0	6[a]
Textiles	0	4	3	10	10	2	0	0	0	1	30[b]
Nonferrous metals	6	3	0	1	0	0	0	0	3	2	15
Chemicals	0	0	2	3	3	1	0	1	0	0	10
Paper and pulp	1	1	0	8	4	1	0	0	0	0	15[c]
Leather and shoes	0	0	0	6	1	0	0	0	0	1	8
Lumber and wood	0	0	0	1	4	0	1	0	0	1	7
Miscellaneous manufacturing	0	0	2	10	5	2	1	1	3	7	31
Total	13	11	8	62	39	8	4	3	7	21	176[d]

[a] Year of adoption cannot be determined for two companies; [b] for four companies; [c] for one company; [d] for seven companies.

are defined. Our estimates, as shown in Table 16, range from nearly 50% in the petroleum and iron and steel samples (with Lifo inventories taken at their book values) down to about 15% for chemical and food (except meat packers) companies. These percentages would, of course, be substantially higher if Lifo inventories were stated in 1947 prices. To repeat, these percentages pertain only to our samples and cannot be generalized to cover the industries sampled without consideration of the percentage representation of companies of different sizes.

The textile sample is the only one with more than 50% of the companies sampled on Lifo; it has 58% with the meat packers next in line with 44%. The foods (except meat packers), chemicals, paper and pulp, and leather and shoe samples have less than 25% of their companies on Lifo. Once again, however, these percentages are not conclusive; they can be varied upward or downward by changing the relative coverage of large and small companies.

(4) *Date of adoption of Lifo.* Nearly 60% of the manufacturing companies using Lifo elected it for the first time in 1941 and 1942 (Table 18). Slightly less than 20% adopted Lifo before 1941 and somewhat more than 20% did not make the change until 1943 or later. Nearly all department and specialty stores on Lifo started in 1941. A few stores which have shifted to Lifo since then have applied the method retroactively to 1941 in their published accounts. Within manufacturing the patterns vary from industry to industry; they are discussed in Appendix A which summarizes the individual industry samples.

CHAPTER IV

Considerations Affecting Decision Whether to Adopt Lifo

In view of the strong tax incentives to adopt Lifo during the war years it is perhaps surprising that the method is still restricted to a relatively small fraction of the corporate economy. This chapter investigates the major considerations taken into account by business executives in deciding whether to adopt Lifo. For the most part the data for the present chapter — as well as for those of the following chapters which relate to the operating problems and decisions of business managements — have been obtained by the field inquiries described in the Note to this chapter.

As occurs in any area of business policy, decisions on inventory accounting and policies often are not based on precise and fully informed analyses of the pertinent facts. In our field inquiries we have found many instances of policy decisions made on incomplete information or on grounds which at first sight seem obscure, unimportant, or irrelevant to the problem at hand. To give as complete a picture as possible of the considerations actually motivating businessmen in their policy decisions on inventories, a number of these instances are described in this chapter. Only with this realistic background can the full impact on the economy of tax requirements with respect to inventory valuation be properly appraised.

One additional word of explanation is needed. Any cataloguing of various considerations motivating business activity, such as is undertaken in this chapter, tends to place undue emphasis on unusual and isolated situations, if only because they take as much space to describe as the more typical situations. While we have tried to indicate the relative importance and frequency of the various factors influencing management's attitude toward Lifo as they are discussed, it is perhaps wise to stress at the beginning that some of the instances cited below are highly specialized and even bizarre in nature while others recur with great frequency.

CHARACTERISTICS OF THE INDUSTRY

Probably the most fundamental factor influencing the interest of a management in the Lifo inventory method, or related methods, is the nature of the industry in which the firm operates. Service companies, restaurants, or many printing and publishing companies — to take extreme examples — are quite unlikely to attach major importance to the method of inventory valuation employed. On the other hand, most large meat packing or tanning companies can be presumed to have given the matter serious consideration.

In the former industries the method of inventory valuation employed is not likely to have an important bearing on a company's financial position or profit showing; the stock of inventories on hand does not ordinarily bulk large enough in relation to the other aspects of the company's activities to be of major importance. In meat packing or tanning, on the other hand, inventories are always an important problem.

Until the war years, however, Lifo and the base-stock method had been restricted to a much narrower industrial scope than simply those industries in which inventory fluctuations have an important effect on profits. The traditional requirements for the use of Lifo or the base-stock method of inventory valuation have been summarized as follows:

> First, the industry must be one in which the spread between raw material prices and finished goods prices is relatively constant during the long upward and downward swings of prices, though the spread may be larger on the way up than it is on the way down, and though there may be many temporary maladjustments to upset the evenness of the spread. . . .
>
> Second, the investment in inventory should be large relative to other assets.
>
> Third, the inventory should consist largely of a few basic materials.
>
> Fourth, it should be possible to convert material in all stages of production to terms of units of raw material.[1]

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[1] C. B. Nickerson, "Inventory Reserves as an Element of Inventory Policy," *Accounting Review*, December, 1937, p. 349.

Before 1939 the Lifo or base-stock methods of inventory valuation were restricted almost entirely to industries which possessed most of or all the above characteristics. In recent years, however, largely under the stimulus of the opportunity for tax savings, novel applications of Lifo have been developed in industries which violate, to a greater or lesser degree, all except possibly the second of the above requirements. For the most part, however, the use of this method is still restricted to industries in which relatively large inventory investments are held, since it is in these industries that the use of Lifo has a marked effect on profits. In this restricted sense, at least, the basic characteristics of a company's industrial activities are still the fundamental factor influencing its management's attitude toward inventory problems and the use of such methods as Lifo.

MEANINGFUL STATEMENT OF PROFITS

Although the opportunity for tax savings has undoubtedly been the major reason for the rapid expansion in the use of Lifo in recent years, it is in no sense the only reason. Historically, the Lifo method, or its close relatives, the base-stock and inventory-reserve methods, were used by prominent corporations in various industries for a number of years before the authorization of Lifo for tax purposes. These methods were adopted for use in the companies' own accounts and published reports, even at the expense of maintaining a separate set of tax accounts (except for the stated-reserve variant), in order to present a more useful statement of income to the management, stockholders, and the public. In recent years some of these companies have shifted to Lifo, as authorized for tax purposes, but a number of them have continued to use the base-stock method for their own reports without employing the Lifo method for tax purposes. Within the last year or two, moreover, several large companies, such as the Caterpillar Tractor Company, have adopted Lifo for their own accounts without electing it for tax purposes. Thus, important representatives of American business have found Lifo or related inventory methods useful for their own operations entirely apart from tax motivations.

The considerations leading to the use of valuation methods designed to eliminate the effect of fluctuating inventory prices on profits can best be shown by quotations from the reports of some of the leading companies involved. The National Lead Company is generally recognized as providing the classic illustration of the normal-stock (or base-stock) method. The company's first public statement explaining its reasons for adopting this method appeared in its 1920 report and is quoted here in part:

> For all practical purposes, the *Normal Stock* is like a piece of machinery which the Company has to have always on hand in order to operate. When the price for Pig Lead, for instance, went to 11¢ a pound, the National Lead Company could not make an actual profit thereon without selling its *Normal Stocks* but, in that event, it would either have to buy back such *Normal Stocks* at the then market, or go out of business. In the latter case, it would lose the value of its good will and the cost of the marketing, which would be far greater than any possible profit on sale.
>
> This being true we do not deceive ourselves by marking up inventory values and taking book profits, *upon which we could not realize*, to be followed later by book losses of like amount. Bookkeeping is likely to affect policy. By taking book profits on ascending markets of raw material, a company is likely to be led into extravagance and wastefulness. On the other hand, book losses during a period of declining market are likely to be discouraging and may become embarrassing. Our stockholders are also likely to be deceived by apparent high earnings followed by severe losses, if such book profits and losses are reported in our published statements.[2]

A second company which adopted the normal-stock method prior to 1939, and has continued it, is the Endicott Johnson Corporation. This company stated in its annual report for the year ending November 30, 1936:

> . . . the Company, upon the recommendation of our auditors, has adopted the normal stock method of inventory valuation. This method gives consideration to the fact that in order to insure the continuity of efficient operations, a considerable quantity of raw materials, goods in process and finished footwear

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[2] National Lead Company, *Annual Report*, December 31, 1920, p. 5.

> must be on hand at all times. The market prices of basic commodities in these inventories — hides and rubber — fluctuate considerably from time to time. As a consequence, under the "cost or market" method of accounting for inventories, profits or losses arising from such fluctuations, which are beyond the control of the management of your Company, are included in the results of operations. The normal stock method reduces to a minimum the amounts of such profits or losses by stating the normal inventories at fixed prices. The inventory quantities, treated as normal, and the fixed prices to which they are reduced are shown in the accompanying balance sheet and are commented upon in the report of our auditors. Inventories in excess of the normal remain on the basis of "cost or market," whichever is lower, as heretofore. Your management believes that by adopting this method it has taken another step in the continuation of the policies that have produced the present sound condition of your Company.[3]

In view of the unusual character of some of the company's basic management policies, the last sentence in this quotation has particular significance. For many years before 1936 the company had prided itself upon being an industrial democracy and had been characterized by an unusually liberal labor policy which included a profit-sharing agreement, medical help, and holiday wages. The company's policies also included a practice of paying steady dividends on common stock as well as on preferred stock.

Given these basic management policies, and given a large inventory of hides and shoes, subject to wide price fluctuations and a long processing period, the traditional lower-of-cost-or-market method of valuing inventories was highly hazardous. In a major price rise a large part of the company's profits as determined by this inventory method would of necessity be tied up in inventories; yet the company would be under pressure to pay out cash in the form of taxes, labor benefits, or dividends if it included inventory profits in its reported profits. The use of the normal-stock method had the great advantage of bringing reported earnings more nearly in line with the disposable cash resulting from current operations, thereby relieving the pressure to pay out excessive sums to employees or to stockholders in years of rising prices. The burden of high income tax payments in such years presumably remained, however, since the normal-stock method is not recognized for tax purposes.

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[3] Endicott Johnson Corporation, *Eighteenth Annual Report,* November 30, 1936, p. 2.

A final illustration of the reasoning leading to the adoption of fixed-valuation inventory methods is the following statement by the president of Swift & Company made at the time the stated-reserve method, referred to in Chapter II, was adopted in 1933:

> Some of our products made profits due to rising inventory prices. While the prices of our products were lower on an average than in previous years, some products advanced during the year, enabling us to earn a profit on part of the inventory. Properly speaking, such profits are capital gains rather than merchandising profits and should be preserved to take care of inventory losses. We have therefore set up a reserve of $4,267,000 on our Balance Sheet against possible future losses due to declining inventory prices.
>
> I think it would be well, in explaining this subject further, to point out, as I have on previous occasions, that Swift & Company always has to keep on hand, in process of cure, in storage, and at distributing centers, a sufficient quantity of meats, produce, and other items to take care of the requirements of our customers. As our products are sold seasonally, they must be replaced seasonally. We cannot sell our goods and then take our profits in cash and discontinue buying livestock. We have to put a part of all cash profits obtained through rising inventory prices back into new inventories, which may or may not be stable in value.
>
> Years of experience in the packing business have shown conclusively that profits due to rising inventory prices should be treated as capital gains and not as real earnings of the business.
>
> We believe our action in establishing a reserve against future declines in inventory values is constructive and conservative.[4]

This statement was elaborated the following year when the reserve was increased in size.

> . . . Owing to the rise in meat prices and the increase in in-

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[4] Swift & Company, *1934 Year Book,* p. 4 (covering the activities of the year ending October 28, 1933).

> ventory values, your directors have thought it wise to add $6,500,000 to our inventory reserve.
>
> I wish particularly to stress the point that profits on inventory, due to rising prices, disappear quickly when prices fall. Experience has shown that they can go as unexpectedly as they come. During the period they stand on our books, they provide no additional cash for the payment of dividends, for the maintenance of property, or for plant extensions. On the asset side of our balance sheet, they are in the inventory account in the form of higher-valued products. While it is true that inventories are constantly being sold and cash is realized, the cash so obtained must be reinvested in new inventories at the higher level of prices if our trade is to be taken care of.
>
> We are, of course, glad to have inventory profits; in fact, we must have them in a period of rising prices if our working capital is to be preserved. But inventory profits are really capital gains, part of which should remain in the business as insurance against losses resulting from falling prices. Had the financial and business community given proper recognition years ago to the real nature of inventory profits and the distinction between such profits and cash profits, all of us would be better off today.
>
> What we need and are seeking most of all is cash profits, profits that can be paid out in dividends or reinvested in the business as occasion requires.[5]

Other companies which adopted Lifo or related methods before 1939 include nonferrous metal smelters and fabricators, petroleum refiners, and food processors. The instances cited, however, are sufficient to illustrate the type of companies which adopted these methods without reference to tax considerations and the general motivations behind their decisions. Further discussion of the economic effects of various inventory methods is left to the next chapter.

OPPORTUNITIES FOR TAX SAVINGS

Even though full recognition is given to the business advantages which Lifo offers to many companies, the fact still remains that the opportunity for tax savings has been the decisive consideration in most decisions to adopt Lifo since 1939. Certainly, the mushrooming of the method since 1941 in such novel areas as department stores would not have occurred in the absence of tax incentives.

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[5] Swift & Company, *50th Anniversary Year Book*, 1935, pp. 3 and 4 (covering the activities of the year ending October 27, 1934).

It is usually easy to determine whether a tax savings will result in the first year in which Lifo is employed. The relevant question from the tax point of view, however, is whether these savings will be permanent or will be wiped out in whole or in part in later years. An election to use Lifo for tax purposes is irrevocable except that the method may be dropped with the consent of the Commissioner of Internal Revenue and subject to such stipulations as he may lay down. Quite conceivably, therefore, many decisions to shift to Lifo which have shown immediate tax savings may, over a longer period of time, result in increased tax payments rather than tax savings.[6]

By and large, the existence and the amount of any tax savings will depend on the combined effects of the following factors: (1) the course of future price movements, (2) fluctuations in tax rates, (3) variations in the amounts and kinds of physical inventories held at the end of each taxable year, (4) the relative stability of income from sources other than inventory profits and losses, and (5) the existence in the tax law of such averaging devices as loss carry-backs and carry-overs.

If prices remain unchanged or show only minor variations, income will be reported in approximately equal amounts under the Lifo and Fifo methods of inventory valuation. With substantial price fluctuations, however, large differences in income will result under the two methods. If physical inventories remain relatively constant, price variations will cause a much greater fluctuation in income when Fifo is employed.[7] Income, and therefore tax liabilities, will be greater under Fifo, as compared with Lifo, when prices are rising; and it will be smaller in years of falling prices. If prices eventually return to their beginning levels, however, profits under the two methods over a period of years will be approximately equal — still on the assumption that physical inventories have remained relatively constant throughout the period. The greater profits shown under Fifo in years of rising prices will be approximately offset under these conditions by the smaller profits (or larger losses) reported in years of falling prices.

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[6] This possibility arises largely because Lifo, as authorized for tax purposes, is strictly a cost method. Lifo inventories must be maintained at their original costs until they are liquidated, even though market prices fall below cost.

[7] See the section below on "anticipated changes in inventory holdings" for a discussion of the effects of fluctuating physical inventories.

The fact that the effects of price fluctuations on *income* will tend to wash out over a period of years — assuming no permanent change in the price level — does not, however, mean that *tax liabilities* will also be equal under the two methods. Even with an unchanged long-term price level, total tax liabilities will tend to be larger under Fifo to the extent that any of the following conditions hold: (1) if income is taxed at progressive rates, (2) if selective taxes such as undistributed profits taxes or excess profits taxes are levied in addition to an income tax, (3) if income tax rates are higher in years of rising prices than in years of falling prices, and (4) if losses in bad years cannot be completely offset against profits earned in good years before the tax liabilities of the latter years are computed.

While no categorical statements can be made as to the extent to which the above conditions will in fact hold, the probability seems very high that some or all of them typically will be important. For various reasons business tax rates are likely to be relatively high in times of rising prices; similarly, experiments with special forms of taxation, such as undistributed profits taxes and excess profits taxes, are more likely to be made in such periods. Events likely to create a demand for tax increases, such as large and increasing government expenditures, also tend to produce price rises. Moreover, the ability of corporations to pay higher taxes, as judged by the public, is ordinarily deemed greater in times of rising prices when profits are usually relatively high. It is also becoming increasingly recognized that tax increases in times of business recession and falling prices are likely to have unfavorable fiscal effects, though there is as yet less public acceptance of the view that taxes should be increased in times of rising prices as a means of promoting economic stability.

Any tendency for losses not to be offset fully against profits in computing taxable income will reinforce the above conclusions. This danger is less severe now, with a two-year carry-over and carry-back of net operating losses, than formerly when taxable income was determined on a strictly annual basis; but it is not entirely eliminated. Much will depend on the nature of future tax legislation in this respect.

The gist of this discussion, as it bears on the issue of the tax savings available from the use of Lifo, is that such savings often may be available in substantial amounts even when prices do not show a long-run upward trend. To put the matter differently: apart from the qualifications introduced below, there may be tax advantages in shifting to Lifo at a time when prices are rising, even though mildly declining price trends were to be anticipated in the long run.

This conclusion is reinforced when two other factors are taken into account:

First, if Lifo is adopted in a year of rising prices, the tax savings will precede any future additional tax costs arising, in years of falling prices, from the excess of Lifo over Fifo income. Even though the savings and additional costs should balance out over time, the taxpayer will still gain from having additional funds on hand immediately after the decision to adopt Lifo is made. In financial jargon, the present value of the immediate savings presumably would be greater than that of additional tax payments of equal absolute amount to be made at an indefinite future date.

Secondly, the immediate tax gain is certain while the possible future tax loss is a gamble. The decision to adopt Lifo with respect to any given year need not be made until after the year is over and the amount of the immediate tax savings can be closely estimated. Long-term price movements are, however, uncertain; prices may rise or fall, and it is difficult or impossible to predict their direction or magnitude with any assurance.

A word of caution should be inserted at this point to keep the preceding discussion in proper perspective. No implication is intended that ultimate tax savings are overwhelmingly probable whenever Lifo is adopted in a year of price increases. If prices are believed to be at or near their peak at the end of such a year, it would obviously be shortsighted to shift to Lifo solely to capitalize on the opportunity for immediate tax savings. In this respect, the decisions of some managements to adopt Lifo for tax purposes in 1946 and 1947 are more likely to result in eventual tax losses greater than the immediate tax savings than are similar decisions made by other companies from 1939 to 1941.[8] The above discussion has, however, been intended to indicate that — *in so far as tax considerations alone are concerned* — a definitely bearish position must be taken on future price movements to justify the foregoing of the immediate tax savings offered by the adoption of Lifo in a year of substantial price increases and high tax rates.

With this background the natural inquiry is: Why was not the shift to Lifo in the immediate prewar and early war years of much greater magnitude? All the factors discussed above seemed to favor substantial tax savings for those who adopted Lifo in, say, the 1939-1941 period. Wartime excess profits taxes, generally regarded as of temporary duration, were in prospect or in effect. The pressures for price increases were known to be strong in view of the war production program. Thus, Lifo offered large immediate tax savings to many taxpayers, and these savings were likely to be offset in postwar years only in the event of a major price collapse to well below prewar levels.

The rest of this chapter, in a sense, is devoted to a discussion of the reasons that more taxpayers have not taken advantage of the apparent opportunities for tax savings offered by Lifo. The decision of many managements to forego the election of Lifo has had nothing directly to do with their appraisal of the potential tax savings offered by it, but rather has been determined by other considerations such as the requirements of the law and Treasury regulations governing the use of the method or the administrative complexities which it introduces. These and related issues are discussed in subsequent sections of this chapter.

In part, however, decisions not to adopt Lifo have been based on an analysis of tax savings and hence are appropriate material for this section. The considerations involved may be grouped under three headings: anticipated price movements, anticipated changes in inventory holdings, and special considerations which have arisen in exceptional cases.

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[8] In some industries, however, prices were held in check by the OPA so that taxpayers had an opportunity to adopt Lifo as late as 1946 or early 1947 at reasonably favorable price levels.

Anticipated Price Movements

Uncertainty as to future price movements was undoubtedly a major reason prompting many managements not to adopt Lifo. Many businessmen believed in 1939-1941 that prices would eventually fall below the levels of those years and that they would therefore be ill-advised to freeze their inventories at existing prices. This reaction is easy to understand — despite the many pressures tending to produce substantial price rises in 1939-1941 — when account is taken of the marked price increases that had occurred from 1932 until 1939. The Department of Labor's wholesale price index for raw materials, for instance, showed by 1939 an increase of approximately 27% over 1932. If prices were appraised primarily by comparisons with the recent past rather than in terms of fundamental changes that the war mobilization was making in the economy, it was by no means clear as of 1939-1941 that prices would remain for any substantial period of time above their then current levels.

In some instances subsequent events have validated this judgment. Manufacturers of rubber products, for instance, with the exception of one company (not one of the big four companies) have not adopted Lifo. At first glance this fact appears surprising in view of the extreme inventory fluctuations that had plagued the industry prior to 1939. Huge inventory losses were incurred by this industry in 1920-1921 and again in 1930-1932 as a result of precipitous price declines in the price of crude rubber; likewise, large inventory profits were experienced in the 1915-1919 and 1933-1937 periods. The magnitude of these gains and losses can be inferred from the fact that the price of crude rubber fluctuated from a maximum $1.23 a pound in 1925 to a low of less than 3 cents a pound in 1932.

The explanation lies in the development of synthetic rubber with the advent of World War II. This development basically changed the price outlook of the industry. Synthetic rubber, produced under government control, has been held at a stable price of 18.5 cents a pound in recent years. Since synthetic and natural rubber are to a substantial degree interchangeable, during the war and immediate postwar years the fixed price on synthetic rubber acted as a powerful check on the price of natural rubber. People in the industry did not expect the price of synthetic rubber to rise significantly, since labor costs were very small and the government was attempting to amortize its fixed investment in synthetic rubber plants. For this reason the rubber industry was protected from increases in its raw material prices during the postwar inflation and had relatively little incentive to adopt Lifo.

In most industries, however, many managements which refrained from adopting Lifo for tax purposes in the early years of its availability have since had reason to regret their decisions. Prices of most commodities have shown steady increases since 1941 and increased rapidly in 1946 and 1947. Hence, with each passing year in which the decision to shift to Lifo was deferred, the decision became increasingly risky. As a result, many companies which could have achieved very substantial savings in income and excess profits taxes by adopting Lifo early in the war rode out the price rise on their traditional methods of inventory valuation. While many managements now regret their earlier decisions not to adopt Lifo at lower price levels, they believe it would be pointless to shift now when prices are widely believed to be at or past their peak levels.

Managements of a number of well-known companies, however, elected Lifo for tax purposes as late as 1946 or 1947, presumably in the belief that conditions in their industry and in the general economy pointed to the probability of continued price rises. (It has, however, also been suggested in field interviews that one motive prompting shifts made as late as 1946 or 1947 was the belief that the "cost" requirement would be lifted by Congress in the event of a price break of any magnitude. If this requirement was removed, Lifo companies would be able to write their inventories down to market, and would be at no ultimate disadvantage relative to Fifo companies.) Other companies, as indicated above, adopted Lifo in 1946 and 1947 for book purposes, but not for tax purposes, believing that the method was desirable for business reasons but that prices were too high to justify its tax use.

The dangers of miscalculating the direction of price movements are illustrated by a number of specific instances uncovered during the study. One company twice adopted Lifo on its interim-year reports, preparatory to electing it for tax purposes, but later abandoned the method when the price of a major raw material dropped in the last half of its fiscal year below its levels at the beginning of the year. In a few cases the retroactive judgments have been carried even further. Some companies have filed their tax returns on Lifo for one or more years, and later have regretted this decision either because of an unexpected price break or because of an unexpected liquidation of inventories (prior to the enactment of the involuntary liquidation relief provision) at high prices in excess profits tax years. In a few cases these companies, after *deliberately* failing to fulfill literally all the requirements for the use of Lifo for tax purposes, have agreed with an affectation of reluctance to the revenue agent's ruling that they must abandon the method because of their failure to meet the statutory requirements. Occasionally, companies have obtained concessions from revenue agents on other moot points in return for agreeing to abandon Lifo under these circumstances! Instances such as these point up the fact, noted above, that taxpayers have a degree of retroactivity in deciding whether to adopt Lifo.

In analyzing anticipated price movements, alert managements have carefully differentiated among the various components of their inventories. Within broad limits the taxpayer can decide which inventory goods and even what components of cost are to be placed on Lifo. Many companies have elected Lifo only for part or all of their raw materials, partly because the labor and overhead contents of inventory costs were not expected to fluctuate widely.[9]

In analyzing anticipated price movements unusual considerations sometimes become relevant. In one instance, a metal manufacturing company was considering Lifo but decided not to adopt it, even though existing costs were not high relative to the historical pattern, because new production techniques which would reduce costs by about 75% were about to be installed. The election of Lifo just before such cost reducing improvements were introduced would have left the company stranded for tax purposes with Lifo inventories carried at costs far above replacement costs.

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[9] Other factors influencing the choice of the specific inventory costs are discussed below.

Anticipated Changes in Inventory Holdings

To this point the discussion of the tax savings offered by the use of Lifo has assumed that physical inventories on hand remain relatively constant. Some of the above conclusions must be modified when account is taken of the variations that may occur in the quantities and types of inventory goods on hand. The expectation of either large increases or decreases in inventory holdings may make the election of Lifo appear undesirable.

At the beginning of World War II, for instance, some companies did not adopt Lifo because they foresaw the necessity of liquidating part of their inventories as a result of expected wartime commodity shortages. Lifo, under these circumstances, would have thrown the entire profit on the liquidated inventories into the year of liquidation (say, 1942 or 1943); under Fifo the corresponding profits would have been brought into income more gradually as rising prices were reflected in inventory values. Inasmuch as taxes were expected to rise between the time of acquisition and liquidation (say, 1940 and 1942) the delay in reporting income would be to the taxpayer's disadvantage. A second and possibly even greater disadvantage would be that inventories acquired to replace those liquidated would have to be carried at their acquisition costs, perhaps at or near peak postwar price levels.

Other companies, not so foresighted as those just mentioned, went on Lifo before 1942 and subsequently experienced costly inventory liquidations because of wartime shortages. Most of these companies, however, were rescued by the relief provision, enacted in 1942, for involuntarily liquidated Lifo inventories. Thus, as events worked out, some companies which failed to anticipate wartime inventory liquidations fared better than those prudent enough to allow for their effects in advance.

The lesson for the future to be derived from this discussion is that the costs of liquidating Lifo inventories must be borne in mind in appraising the desirability of the method. If both tax rates and prices are expected to rise, the immediate benefit of holding inventories on Lifo at a fixed value may be more than offset by the additional income, and hence taxes, resulting from a subsequent liquidation of any substantial part of Lifo inventories. Such inventory liquidations may occur because of permanent shifts in the taxpayer's business, such as technological developments creating new materials, or because of temporary events such as strikes or crop failures. The wartime relief provision for involuntary liquidations was temporary in character, and taxpayers are not now protected in the event of future inventory liquidations. Thus, it is important that taxpayers consider whether their inventories are in balance, as to both size and distribution, at the time Lifo is first adopted for tax purposes.

Just as a company confronted with the probability of inventory liquidation may be ill-advised to elect Lifo for tax purposes, so may a company anticipating large increases in its inventory holdings. Inasmuch as each annual increment to physical inventories must be carried at prices prevailing in the year of acquisition, the advantages of carrying a small initial Lifo inventory at relatively low prices may be more than offset if large increments acquired in later years must be valued at much higher prices.

The management of one rapidly growing company reported that the expectation of large increases in its replacement-parts inventories in postwar years was one reason that Lifo was not adopted during the war. As a matter of fact, the inventories of this company had expanded by 1946 to about double their 1941 level, with most of the increase coming at postwar price levels. Under these circumstances, it is not at all clear that, in the long run, the company would have benefited taxwise by electing Lifo in 1941 despite the price increases that have occurred since then.

Seasonal fluctuations of wide amplitude in inventory holdings also create special problems for companies contemplating the adoption of Lifo. In times of rising prices the tax savings will be much greater if the company's taxable year ends when inventories are near their seasonal peaks rather than just before the seasonal build-up of inventories. The opposite relationships, of course, will hold in years of declining prices.

This aspect of the problem is well illustrated by the meat packing industry, in which large seasonal increases in inventories occur in November and December because of heavy livestock marketing in the late autumn. Several meat packers have taxable years ending in December when inventories are large, while others in the industry have taxable years ending in October when inventories are at lower seasonal levels. Under Lifo the former companies are able to charge inventory purchases made during the November-December build-up period against sales of the year ending in December, thereby reducing taxable income in periods of rising prices by charging purchases made near the year's end partly against sales made earlier in the year. Companies with taxable years ending in October, on the other hand, must charge the costs of the heavy November-December purchases largely against future sales made during the taxable year ending the following October, thereby increasing taxable income in periods of rising prices. The reverse relationships for years of falling prices need not be spelled out.

This discussion of inventory holdings thus far has implicitly assumed that the inventories of a company can be regarded as a single homogeneous unit. In practice, of course, inventories must ordinarily be divided into various categories or pools for the administration of Lifo. The various considerations with respect to inventory holdings discussed above apply separately to each inventory category to which the Lifo principle is applied. For instance, shortages of specific materials during the war forced many companies to shift to the use of substitute materials. Similar shifts may occur at any time because of technological changes and new process developments. These shifts ordinarily involve inventory liquidations with the effects on income noted above. Thus, it is important that when Lifo is adopted, the individual components of a taxpayer's inventory as well as its aggregate size be in balance with future requirements and sources of supply.

Special Considerations

Occasionally particular circumstances arise which are of great importance to individual companies in determining the tax savings to be derived from Lifo but which are not of general application. Some such instances have already been cited under the headings of anticipated price changes and fluctuations in inventory holdings; the remainder have to do largely with the effects on income of various adjustments that may be required when Lifo is first adopted for tax purposes.

The tax regulations governing non-Lifo taxpayers stipulate that manufacturing and merchandising inventories may be valued on a cost or a lower-of-cost-or-market basis, with cost ordinarily being determined according to the Fifo rule. They specifically bar the use of a "constant price or nominal value" for so-called normal stocks of inventory goods and the practice of "taking work in process, or other parts of the inventory, at a nominal price or at less than its proper value."

In practice, however, the Bureau of Internal Revenue is much more lenient with respect to methods of inventory valuation accepted for tax purposes than the Treasury regulations would lead one to believe. In the first place, in auditing a tax return the typical revenue agent ordinarily pays much less attention to a careful review of a taxpayer's inventory valuation policies than to other matters, such as, for instance, depreciation rates or the reasonableness of officers' salaries. One reason for this practice is that for non-Lifo taxpayers the effect on income of differences in inventory valuations frequently washes out over a short period of time and hence has important lasting revenue effects only in times of rapidly changing tax rates.[10] Another reason is that the complexity of auditing inventories makes it uneconomic for the Bureau to concentrate its limited personnel on this problem; from the point of view of uncovering understatements of taxable income, other areas of investigation offer better pay dirt. In the second place, to the extent that inventories are carefully audited, as much or more emphasis is placed on consistency of practice as on a literal adherence to the regulations.

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[10] One reviewer of this manuscript in draft form reports that he has encountered frequent instances in recent months in which Treasury agents have questioned inventory valuations. It is his belief that the Bureau may have issued instructions for a more careful scrutiny of inventory valuation procedures. One or two other isolated bits of evidence encountered since this manuscript went to press point in the same direction.

For both these reasons many taxpayers have long used methods of inventory valuation which do not technically conform to the Treasury regulations, usually methods which result in abnormally low inventory valuations. Such companies frequently have been reluctant to adopt Lifo for fear that the Treasury, on reviewing the company's inventory valuation policies, would require that inventories be written up to their full cost value at the time Lifo was first adopted, inasmuch as one of the Lifo requirements is that the opening inventory be valued at cost.

Several companies interviewed have publicly valued part of their inventories essentially on a normal-stock basis, carrying specified materials at fixed prices over a long period of time, and have been allowed to employ the same practice for tax purposes. In one instance, the prices used were so low that even in the depths of the 1930 depression years market prices exceeded the fixed prices at which inventories were valued. Yet the Treasury has not questioned the use of this method by these companies, perhaps because of its consistent application over a long period of time.

In another instance substantially similar results were obtained by a method which technically satisfied the Treasury regulations. This company valued the part of its inventories regularly used in production on a routine lower-of-cost-or-market basis. But it also carried a large "reserve stock" of raw materials acquired at very favorable prices. It was able to retain a very low fixed valuation for these materials by maintaining their identity and carrying them on the company's books at their actual costs — a procedure approved by the Treasury regulations.

Another practice sometimes followed is to exclude part of normal manufacturing overhead from work-in-process and finished-goods inventories. This practice, although contrary to the Treasury regulations and also to generally accepted accounting principles, has sometimes been allowed for tax purposes. One prominent accountant has reported to us that nonlisted companies frequently exclude substantial items of manufacturing overhead from their inventory valuations.

In still another instance a management did not elect Lifo for tax purposes partly because of the belief that the company would lose the right to a policy which it had established for obsolete inventories. This company, a manufacturer, produced certain items of spare parts merely to maintain a "full line" so that dealers could be stocked to meet any possible demands by customers and hence maintain customer goodwill. The eventual sale of many of these parts was often known to be improbable, so the company followed the practice of charging off immediately as obsolete those items which it did not expect to sell. The probable disallowance of this practice if the company elected Lifo was one of several considerations leading the company not to do so. Instances of this type are akin to the widespread hesitancy to surrender the lower-of-cost-or-market option by adopting Lifo.

One case runs directly counter to those thus far cited. Lifo was adopted for the specific purpose of retaining an unusually favorable inventory valuation. The company in question had recently purchased a subsidiary and, as part of the deal, obtained its inventory at a very low price. On the advice of its accountant the company immediately placed the subsidiary on Lifo, thereby freezing the inventory permanently at its low acquisition price and excluding the difference between this price and the replacement cost of the inventory from taxable income.

LAW AND TREASURY ADMINISTRATION

Many taxpayers have decided not to elect Lifo because they have been inhibited by specific requirements of the Internal Revenue Code or by the manner in which the Lifo provisions have been interpreted and administered by the Treasury. The important changes in the law and in the Treasury administrative policies are, therefore, briefly summarized at this point; the detailed discussion of these matters is reserved for Chapter VIII.

As already stated, the use of Lifo for tax purposes was first authorized for a narrow range of industries in 1938 and was then made generally available to all taxpayers beginning in 1939. Since 1939 only two specialized amendments have been made to the sections of the Internal Revenue Code governing Lifo. In 1942 the restrictive provision which had barred taxpayers from adopting Lifo for any year in which interim financial statements had been issued on a non-Lifo basis was eliminated. Also in 1942 the relief provision covering involuntary inventory liquidations of Lifo taxpayers was enacted.[11]

The essential requirements of the Code, which have remained unchanged since 1939, have been noted as they have been relevant to the preceding discussion. It will, however, probably be helpful to restate them in a more systematic manner at this point. The use of Lifo (or as the Code phrases it "the elective method") is authorized provided that the taxpayer:

(1) Files the required form with his tax return for the first year in which Lifo is to be used, indicating an irrevocable election of the Lifo method;

(2) Carries his inventories at cost (*not* the lower-of-cost-or-market) while he is on Lifo;

(3) Recomputes the closing inventories of the year preceding the change to Lifo on a cost basis; [12]

(4) Uses the Lifo method in his other financial statements, e.g., stockholder reports, for the year in which Lifo is elected and for all succeeding years; and

(5) Agrees to such adjustments in the application of the method as the Commissioner may deem necessary clearly to reflect income.

As has been indicated, by far the most important restraint on the use of Lifo has been the necessity of a permanent election of a cost valuation for Lifo inventories. If the cost or market principle could have been used in connection with Lifo, the method undoubtedly would have been much more extensively elected. The other requirements listed above have kept some taxpayers from adopting Lifo, but on the whole they have been of specialized rather than of general importance.

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[11] This provision was made retroactive to years beginning after December 31, 1940, by the Revenue Act of 1943.

[12] The Code spells out in considerable detail the way in which Lifo cost is to be determined both with respect to the initial Lifo inventory and subsequent additions thereto. The details, however, are not of importance for the subject matter of this chapter.

Uncertainty with respect to the inventory groupings or "pools" to be used in applying the Lifo principle for tax purposes has been the only other major area in which the law and Treasury regulations have had an important effect on the use of Lifo. If very narrow classifications of inventory goods were required, companies in only a limited range of industries with relatively homogeneous inventory goods would find the method feasible. If broad classifications were accepted, on the other hand, the method would be attractive to much larger numbers of taxpayers. The reason for this is that Lifo is advantageous from both a tax and an accounting viewpoint only if base inventories are seldom or never liquidated to a major degree. Many taxpayers can be reasonably assured of maintaining a *total* inventory of a specified size in stock; but the narrower its classification the less sure can the ordinary taxpayer be of retaining a specified amount of each category of the inventory on hand at the close of each year. Supply shortages, style changes, technological developments, strikes, and other unforeseen events may at any time cause substantial liquidations of specific portions of a taxpayer's inventory. Hence, the narrower the inventory categories to which Lifo is applied, the more difficult the method is of application and the more uncertain are the benefits which it offers.

The problem of grouping inventories into Lifo categories has been a source of much difficulty both to taxpayers and to the Treasury. The Code itself is quite indefinite on the point. Consequently, the issue has had to be decided first by Treasury regulation and then by judicial interpretation.

The initial disposition of the Treasury, consistent with the interpretation of Lifo by the accounting profession up to 1940, was to insist on relatively homogeneous categories of goods. In the early years of Lifo, taxpayers familiar with the thinking of the Bureau of Internal Revenue in Washington were fearful of a restrictive interpretation that would necessitate the use of many inventory categories. In the cotton textile industry, for instance, it was feared that the Treasury might rule that cotton would have to be divided into numerous categories based on various staple lengths, colors, and grades, and that the raw cotton in these various categories would have to be treated for Lifo purposes as a separate commodity from the raw material content of goods in process or of finished goods.

After much discussion, particularly with representatives of the tanning, copper and brass fabricating, meat packing, and textile industries, the Bureau finally resolved the uncertainties by issuing a liberal ruling (T.D. 5407, October 9, 1944). This ruling sanctioned the grouping of broadly similar raw materials into a single inventory classification and also permitted the raw material content of work in process and finished goods inventories to be combined into a single group with the raw materials themselves.

While the slow process of policy formation was proceeding in the headquarters of the Bureau, the various field offices were left pretty much alone to work out their own procedures based upon the published Treasury regulations. Prior to T.D. 5407 these regulations were couched in very general terms. Even T.D. 5407 did not provide precise guides as to the inventory groupings that would be permitted. The inevitable consequence of this decentralized policy was a wide variation of practice in different sections of the country.

In so far as we have been able to determine, the Lifo provisions have been liberally administered in most sections of the country. This finding has been verified directly by conversations with Internal Revenue Agents in the Boston, New York, and Chicago offices of the Bureau and indirectly by interviews with businessmen and accountants familiar with Bureau policies in many other areas.

As a matter of fact, most field offices of the Bureau are so short of staff that they have been unable to allocate the personnel needed for specialized attention to the problem. When the shift to Lifo was at its peak, the understaffed Bureau offices were under extreme pressure trying to administer the wartime excess profits tax with its numerous complications.

Lifo, which affected only a small minority of taxpayers, was necessarily regarded as a relatively unimportant matter from the standpoint of the Bureau in comparison with the flood of problems raised by the wartime tax program. Decisions on Lifo were often delegated to the local revenue agents in the field. These agents, for the most part inexperienced in handling Lifo claims and harried by an overload of work, naturally tended to accept the procedures adopted by the taxpayer except when these procedures were obviously unreasonable.

As a consequence, substantial diversity of practice developed, even within a single field office of the Bureau, depending on the initial policies adopted by the individual taxpayer. In many instances these initial decisions have proved to be of great importance. Taxpayers fortunate or foresighted enough to have applied Lifo initially to all or most of their inventories on the basis of broad commodity groupings often found themselves at a great advantage in later years over competitors that had adopted more restrictive procedures.

The practice in the Chicago office of the Bureau stands in sharp contrast to the other areas covered by our survey. From the early days specialized attention was given to Lifo by the Chicago office. This procedure was feasible for two reasons: the Chicago office because of its size was able to assign its personnel to specialized duties to a greater degree than was practicable in most other Bureau offices, and Lifo was more extensively used in the Chicago area than in most other parts of the country.

The Chicago office took the view that commodities should be narrowly defined for purposes of determining Lifo categories. In many instances taxpayers and accountants in the area believed that the policy was carried to extreme lengths; they cited situations in which the Bureau had held that otherwise identical items should be grouped into separate categories solely because of differences in length, weight, or even in the size of the containers in which they were packaged. This policy had two major effects: it practically halted the closing of Lifo returns, and it discouraged many taxpayers in the area — especially those with heterogeneous inventories — from electing Lifo for tax purposes. In defense of the policy of the Chicago office, however, it should be stated that this narrow interpretation reflected in part the early thinking in some quarters of the Washington office of the Bureau — though perhaps with exaggerated emphasis.

For a considerable period very little progress was made in resolving the stalemate. Eventually, the clarification of central Bureau policy, culminating in the promulgation of T.D. 5407, settled many of the points at issue. At the local level a corresponding change in policy in the Chicago office also facilitated the settlement of outstanding cases. The agent currently in charge of Lifo claims in Chicago has won wide respect for his competent and impartial handling of them. Thus, after a difficult beginning the Chicago office during the last several years has been recognized as doing an outstanding job in handling Lifo problems.[13]

Another phase of the Bureau policy in handling Lifo claims has yet to be mentioned. In 1941 and 1942 the National Retail Dry Goods Association inaugurated an intensive campaign to have Lifo approved for use by retailers.[14] The orthodox application of Lifo, based on an identification of homogeneous inventory goods, was clearly impracticable for department stores; recognizing this, the industry developed a novel approach relying on price indexes for whole departments as a means of estimating changes in the quantity of physical inventories on hand. The Bureau refused to sanction this application of Lifo.

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[13] To avoid misunderstanding, it should be explicity stated that the criticisms by taxpayers and accountants — often couched in very strong language — of the early handling of Lifo by the Chicago office have been restricted to this single matter. Even those taxpayers who were most critical on this specific issue have expressed respect for the integrity and general performance of Mr. E. C. Wright, Internal Revenue Agent in Charge of the Chicago office, and the general policies of his office. Indeed, the over-all impression one receives from interviewing numerous business executives in various locations is that in the main the Bureau is doing a fair, and within its limited resources, a competent job of tax administration. The impression of the author, obtained from first-hand interviews on this and other tax research projects, does *not* substantiate the charge often made that the Bureau is out to gouge taxpayers for the last dollar of revenue irrespective of the equities involved, despite numerous isolated instances which might be cited in support of such a charge.

[14] This campaign is described as follows in an article by Ralph W. Button, "The Lifo Bonanza?" *The Balance Sheet*, February, 1948, p. 3 (NRDGA, Controllers' Congress):

"The NRDGA through Controllers' Congress and the NRDGA Tax Committee gave wide publicity to the application of this method by retailers. Lifo was discussed at length and in detail at the convention early in 1942. As a matter of fact, the activities of the Controllers' Congress and the Tax Committee resembled a campaign to arouse the interest of retailers in this new method in valuing inventories. It was then believed that the greater the number of retailers adopting Lifo the better the chances of obtaining the acceptance by the Internal Revenue Bureau of the Lifo method employed by retailers. How right this turned out to be.

"The retailers who adhered to Lifo through the past six years played an important part in the final acceptance of Lifo by the Bureau of Internal Revenue. Without a representative portion of the retail industry supporting the method, the decision of the Tax Court might have been the other way."

Despite the opposition of the Bureau some 45 or more companies operating department stores continued to file on Lifo; others abandoned their attempts. In January, 1947, the impasse was finally resolved by a decision of the Tax Court upholding the retailers in a test case and by the Treasury's subsequent acquiescence in this decision. Other decisions have subsequently extended the legality of the "dollar-value" approach to taxpayers not using the retail inventory method. These developments have raised difficult problems of tax equity which are discussed at length in Chapter X.

In summary, during the last ten years the Treasury administration of Lifo has run the gamut from a very restrictive policy to a very liberal policy. The official policy of the Bureau in Washington has been steadily liberalized; the main milestones being T.D. 5407, issued in 1944, and the Treasury acquiescence in the Hutzler decision in late 1947. The regional administration of Lifo although uneven has for the most part been more liberal than the central administration. Without objection from field agents many taxpayers used broad commodity groupings and some used, in substance, dollar-value or index-number approaches before official regulations were issued authorizing these applications. The policies of the Chicago office of the Bureau have paralleled more nearly the thinking of the Washington office; in the early years they were perhaps even more restrictive.

If the Treasury policy on Lifo had reached its present position by say, 1941, a considerably larger number of taxpayers would have elected the method. Many taxpayers, especially in the Chicago area, were discouraged from doing so before 1944 by the belief that it would be narrowly interpreted by the Bureau. By the time a liberal administrative policy was clearly established many of these taxpayers refrained from adopting Lifo because prices had already risen substantially.

MANAGEMENT INERTIA AND IGNORANCE

Management inertia and ignorance have been major reasons that Lifo has not been more extensively employed. In many companies, both large and small, the issue has been settled by default; the potentialities of Lifo have not been seriously and systematically investigated. This fact should be emphasized lest too great onus for the limited use of Lifo be placed on the Treasury administrative policies. For every company that has been discouraged by Treasury policies probably 10 to 100 that might have used Lifo simply have not made a thorough analysis of the issue.

One indication of the casual consideration by many managements is the frequently encountered remark: "No, we don't use Lifo; we thought about it but decided that in the long run everything would wash out." This statement has an element of truth in it. But it is valid only under specialized assumptions as to such matters as price movements, tax rates, inventory holdings, and loss offsets. Under 1940 and 1941 conditions, a realistic appraisal of these factors would hardly have led most managements to the conclusion that Lifo in fact would even out in the long run, at least so far as tax savings were concerned. While some managements made their decision after a detailed analysis, many more never systematically considered the factors involved.

The striking concentration of the use of Lifo among very large companies is probably explained mainly on this account. Executives of small and even medium-size enterprises are likely to be so absorbed in the daily operation of their businesses as to fail to appreciate the significance of developments such as Lifo — let alone to give them adequate analysis. Large companies with specialized staff organizations, on the other hand, are geared up to detect and appraise out-of-the-way developments such as Lifo.

Another advantage of large companies in this respect is that they are more likely to have the advice of well-qualified accounting specialists. Small companies in the normal course of events are more likely to retain public accountants whose organizations are not sufficiently specialized to keep abreast of new techniques. This fact is important since public accountants have often taken the initiative in bringing Lifo to the attention of company managements. Here, both the competence of the accountant and his attitude toward Lifo may play a decisive role. Among the major accounting firms and even within them the diversity of attitudes is wide. Members of these firms have usually attempted to take a neutral position; they have explained the method and pointed out its implications but have not given formal advice for or against it. A few large firms, however, have promoted the use of Lifo among their clients while others have tended to discourage it.

Trade associations have also been an important influence in spreading public awareness of Lifo. In tanning, meat packing, textiles, petroleum, and nonferrous metals, for instance, such associations have taken an active interest in disseminating information about Lifo and in working out with the Treasury a satisfactory basis for its tax application. The surprising growth of Lifo among department stores can be largely attributed to the aggressive promotional efforts of the National Retail Dry Goods Association.

ADMINISTRATIVE COMPLEXITY OF THE METHOD

The fear that Lifo would be unduly burdensome in operation has been an important consideration leading many managements not to adopt it. We have not attempted to make a precise appraisal of the percentage increase in clerical or management time needed to install and operate the method; indeed, any sweeping statements on these matters would be almost meaningless, since the situation varies so much from company to company and industry to industry. We have, however, been impressed by the evidence gathered during our field work which supports the following two general statements about the administrative complexity of Lifo.

First, managements that actually have adopted the method and used it for several years seem on the whole much less disturbed by its mechanical complexities than do those which turned Lifo down partly on this ground. This finding could simply mean that the difficulty of using the method varies from industry to industry or with the size of firm and that the appraisals of both groups have been accurate. A more convincing explanation, however, is that techniques have been developed in practice to simplify the problems presented by the method so that its complexities have been less severe than was often anticipated. True, additional costs have been involved, but they have seldom been prohibitive. While a few companies tried and discarded Lifo before 1939, other companies which adopted Lifo somewhat hesitantly, mainly to capitalize on its tax advantages, now profess that they would continue to use the method quite apart from tax motivations.

Secondly, the difficulties presented by Lifo can be controlled by management; they depend a great deal on how it is applied. For instance, many companies with highly heterogeneous inventory goods have managed to hold administrative costs within reasonable bounds by classifying inventories into broad categories. The extreme example of this procedure is of course the use of price indexes in deflating department store inventories; the orthodox method of identifying individual commodities would have been completely unmanageable for department stores. But similar illustrations can be found among manufacturing companies. Some such companies with highly heterogeneous inventories have applied Lifo with relative ease by employing broad commodity groupings.

Another critical decision has been how far down the company organization to install Lifo. Many administrative difficulties have been by-passed in companies with branch plants by making the necessary Lifo calculations and adjustments only at company headquarters. In other words, the local accounting procedures of these companies have been left largely untouched and the Lifo adjustments simply superimposed at the central office. Other companies have completely revamped their accounting systems and closely integrated Lifo procedures with all phases of their inventory records. At least one company visited actually simplified its accounting procedures when Lifo was introduced by adopting much broader inventory groupings than it had previously used.

The preparation of interim statements constitutes another illustration of the extent to which complexities can be controlled by management. Some companies have taken great care to prepare each quarterly statement on a strict Lifo basis. Others have been content to make over-all adjustments designed to present reasonably consistent interim reports; they have not attempted to apply the Lifo principle in detail. Still others have ignored Lifo adjustments entirely in interim reports, making them only in their annual financial statements.

For tax purposes the only requirement is that annual statements must be prepared on a Lifo basis; the company may prepare its interim statements without reference to tax requirements. The administrative burdens involved will vary tremendously depending on the procedures selected.

Finally, the "tooling-up" costs of installing Lifo must be distinguished from the problems encountered in its continuing use. As with any change in procedures, many temporary difficulties are encountered which can be ironed out after the trial runs are over. Likewise, the occasional revisions in the application of the method which have been made, sometimes retroactively, in reaching a settlement with the Treasury, cannot properly be regarded as a continuing problem in appraising its administrative difficulties.

FINANCIAL CONSIDERATIONS OTHER THAN TAX SAVINGS

In about ten instances encountered in our interviews financial considerations other than tax savings have been important in Lifo decisions. Three different patterns have been noted.

First, several executives reported that their companies refrained from adopting Lifo because of the unfavorable effect which the method would have had on their profit showing. One company elected Lifo for only a small portion of its inventories because a more extensive adoption would have reduced profits "too much." The management was willing to sacrifice the opportunity for tax savings in order to maintain its reported profits. Another management refrained from adopting Lifo at all for substantially the same reason. The president of a third company, when told that Lifo would reduce profits well below those of the company's principal competitors, is reported to have exclaimed: "We can't do that; my stockholders would never understand what's happening — they'd fire me!"

In a related group of companies the decision concerning Lifo was motivated mainly by the expected effect (through profits) on the price of the company's stock. Officers of at least four companies, each in a different industry, reported that this consideration was influential in the decision not to adopt Lifo. For instance, one management is reported to have reasoned that if Lifo would tend to stabilize profits it would also even off fluctuations in the price of the company's stock. Since the controlling shareholders were known to have purchased the stock for speculative reasons, Lifo was rejected.

The National Lead Company stands in apposition. The company's president stated in the 1918 report:

> . . . The large number of women and estates appearing as stockholders and the small number of names dropped from the stockholders' lists during the year when the market price of the stock fluctuated greatly indicates that our stockholders in the main seek safe, permanent investments rather than speculative profits. Their desires will continue to dominate the policy of the company.[15]

The company's early adoption of the normal-stock method was one means of implementing this avowed purpose.

The third group of companies was primarily concerned about dividend payments. The management of one company considered the election of Lifo as prices rose sharply after several years of relatively low earnings, but the president was disturbed because Lifo would reduce earnings in the first year below dividend requirements. Since he did not want to cut dividends or to dip into surplus to pay them, the adoption of Lifo was delayed.

The ability to pay dividends was even more critical in other cases. One company could have reduced its tax bill in a single year by a very large sum by electing Lifo, but reported profits would also have been greatly reduced. Part of the stock of the company was held by a parent organization; part was publicly owned. The parent had a large issue of bonds outstanding and was dependent on dividends from its subsidiary to meet its own interest charges. Furthermore, the subsidiary had only a small surplus because a stock dividend had recently been declared; thus, the subsidiary's customary dividend could be paid only from its current earnings. Since Lifo would have reduced these earnings below the dividend requirements of the parent company, it was not adopted.

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[15] National Lead Company, *Annual Report,* December 31, 1918, p. 9.

Another company facing a somewhat similar problem chose a different course of action. In this instance the parent company, which owned nearly half the capital stock of the subsidiary, also depended in large part upon dividends from its subsidiary for its own income. The subsidiary, which had adopted Lifo some years previously, had a deficit in its capital accounts, and hence was legally unable to pay dividends. But it held large inventories valued at a Lifo base much below current market prices. The parent company desired to abandon Lifo in order to be able to revalue its inventories at current price levels, thereby creating the necessary surplus for dividend payments. The management feared, however, that if Lifo was abandoned the Bureau of Internal Revenue would insist on a recomputation of income for all Lifo returns; such a recomputation would have defeated the management's purpose by throwing most of the additional income into excess profits tax years. The management therefore chose the alternative course of shifting its taxable and fiscal years to a period ending when inventories were at a seasonal low. This action brought into income the difference between current costs and the Lifo-base costs of the liquidated inventory. The company was willing to pay the income tax on the income resulting from the inventory liquidation in order to create the surplus from which it could declare dividends — even though the shift did not free cash with which to pay either the dividends or the additional taxes.

POSITION OF MANAGEMENT

Another consideration, perhaps more interesting than important, is the effect that Lifo may have on the security of management positions. Since reported profits probably are the most important measuring stick used in evaluating management performance, it is not altogether surprising that some officers have looked at Lifo from this viewpoint.

The possible effects of Lifo here are twofold. On the one hand, it has been suggested that the use of Lifo would increase managements' security by bringing reported profits more into line with disposable income. One executive in a processing industry pointed out that in periods of prosperity, price increases necessitated the retention of a large portion of earnings to carry the higher dollar value of inventory. Stockholders then saw a relatively large dollar net income reported, but did not receive a proportionate increase in dividends. He described them as thinking of management as "tightwads." On the other hand, when prices fell, large losses were beyond management control; minimum stocks of inventory had to be kept on hand despite declining prices if the business was to continue to operate. Under these conditions, he said, stockholders were inclined to consider management incompetent. Another businessman, commenting on the same general situation, asserted that the adoption of Lifo would add 10 to 20 years to the term of management in his industry by preventing it from being congratulated unwarrantedly for inventory profits and from being criticized unjustly for inventory losses.

On the other hand, controllers of several companies reported that they had refrained from recommending that Lifo be adopted for fear of the situation which might develop if market should fall below Lifo cost in some future year. Under these circumstances their companies might be subject to income taxes when an operating loss was reported for book purposes. This contingency might develop because Lifo inventories must be valued at cost for tax purposes but may be reduced to market, if market is below cost, for book purposes. The individuals in question were more willing to run the risk of allowing their companies to forego immediate tax savings from Lifo than of suffering possible tax losses in a later year.

A somewhat related point is that one management is reported to have refrained from adopting Lifo because of the reduction in management bonuses which the method would have caused. In many companies leading executives now receive bonuses the size of which is related to reported net income. In a year of rising prices Lifo by reducing net income would reduce the size of bonuses so computed.

CONCLUSION

The opportunity to reduce tax liabilities has been by far the most powerful motivation leading to the widespread adoption of Lifo during the past decade. The combination of sharply rising prices and high excess profits taxes gave managements in many industries a strong tax incentive to shift to Lifo during the war years. The large price increases of 1946 and 1947 caused some companies to make the shift as late as these years, though the risk of ultimate tax penalties was then greater because of the height to which price levels had already risen.

In general, the opportunities for tax savings from the use of Lifo depend on the combined effects of the following factors: (1) the course of future price movements, (2) fluctuations in tax rates and in the nature of the tax structure, (3) variations in the amounts and kinds of physical inventories held at the end of each taxable year, (4) the relative stability of income from sources other than inventory profits and losses, and (5) the existence in the tax law of averaging devices such as loss carry-backs and carry-overs. The interaction of these factors, however, is too complex for a statement of their effects to be compressed into this brief summary.

While tax incentives have been the controlling motivation in the decision of the majority of managements that have adopted Lifo, numerous other considerations have been involved. A few companies used Lifo or related methods such as base-stock for many years before the tax law recognized Lifo. Their decisions were motivated mainly by the belief that such methods would give a more meaningful statement of income for management and stockholder purposes. Many executives who recalled the severe inventory losses of 1920 and 1921 were also anxious to provide a "cushion" to protect themselves from the necessity of reporting similar losses in the event of a price collapse at the end of World War II. They saw in the availability of Lifo an opportunity to accomplish this objective and at the same time to make substantial tax savings.

Apart from uncertainties as to the ultimate tax benefits to be derived from Lifo, the following have been major reasons causing some managements to refrain from electing it. In many industries inventory profits and losses are so small that the problem quite properly was not given serious attention by management. In other industries in which the problem was important, however, numerous companies allowed the matter to be settled by default — at least until prices had risen to the point that the possibility of benefiting taxwise from electing Lifo appeared highly dubious.

In part the failure of many managements to give serious thought to Lifo in the early war years can be attributed to the specialized character of the problem, to the heavy burden of other pressures on management during these years, to the prevailing accounting opinion that Lifo was appropriate for only a narrow range of industries, and to the early administrative interpretations of the Treasury which favored a narrow application of the method. Another reason for the hesitancy on the part of many managements to shift to Lifo was the belief that the administrative burden of operating the method would be unduly troublesome. Financial considerations, such as the unfavorable effect Lifo would have on immediate profit showings and the restrictions which it might impose on dividend distributions, also caused some companies to refrain from adopting Lifo.

NOTE TO CHAPTER IV

Description of Field Interviews

We have interviewed one or more of the executives (usually vice presidents, treasurers, or controllers) of 62 manufacturing companies, conferring with 97 men in all (Table 19). The interviews were planned to cover several companies in each industry in which Lifo was known to be widely used and also a fair selection of companies in industries with large inventories but relatively slight use of Lifo and related methods. Except for companies manufacturing lumber and wood products, at least three companies were visited in all major manufacturing industries in which Lifo is widely employed. In all, executives of 38 Lifo companies and 24 non-Lifo companies were interviewed.

Most of the companies visited were large, since the use of Lifo is known to be concentrated among such companies. But approximately 20 companies with assets of under $50 million have been visited, so that we have some direct evidence as to the appraisal of the managements of small and medium-size companies as to the effect of taxes on their inventory policies. In terms of regional distribution, we have covered an area bounded roughly by Boston, Cleveland, Chicago, Pittsburgh, Washington, and New York.

One or more branch offices of 10 accounting firms, including most of the nation's largest firms, have been visited. In all, approximately 27 partners of these firms have been interviewed in 16 separate offices. While these interviews typically did not provide such detailed information with respect to any one company as did the direct interviews with company executives, the interviews with accountants greatly broadened the scope of our information. Most accountants interviewed were familiar with the general policies of many of their clients as well as with Treasury policies; consequently, discussions with them were most helpful in placing the information obtained from specific companies in proper perspective.

Conferences were also held with about 15 members of the Bureau of Internal Revenue, about half with technical experts in the Washington office of the Bureau and half with members of the Bureau field staffs in New York, Boston, and Chicago. These conferences provided information as to both the official policy of the Bureau and the application of this policy in various field offices; they also provided general insight into company practices with respect to inventory valuation procedures.

Finally, eight or ten additional conferences were held with various other individuals, including officers of several trade associations, members of the National Income Unit of the Department of Commerce, and academic accountants. All these conferences supplemented our information on the practices of particular industries or the handling of specific problems.

In addition to the field inquiries undertaken as part of the research for this monograph, Professor Dan T. Smith has conducted a series of interviews with the top managements of leading companies on the general question of the effect of taxes on major company policies. These interviews, typically with company presidents or directors, have been very helpful as a means of checking conclusions based on our own inquiries, which usually have been with treasurers or controllers.

In some parts of the study, especially Chapter X, part of Chapter VIII, and Appendix B, the author's experience as Consultant to the Treasury Department has provided the equivalent of additional field investigation. This Treasury experience has provided an opportunity to observe firsthand the reactions of businessmen and government officials concerned with various tax problems here discussed.

TABLE 19. SUMMARY OF FIELD INTERVIEWS WITH MANUFACTURING COMPANIES

Industry	*Total Companies Visited*	*Lifo Companies Visited*	*Executives Interviewed*
Petroleum	5	3	12
Iron and Steel	5	4	10
Food (except Meat Packers)	6	4	8
Meat Packers	3	3	5
Textiles	8	5	10
Nonferrous Metals	9	6	12
Chemicals	3	3	5
Paper and Pulp	3	2	6
Leather and Shoes	6	3	7
Lumber and Wood	0	0	0
Miscellaneous	14	5	22
Total	62	38	97

CHAPTER V

Economic Significance of Different Methods of Valuing Inventories

WHAT is the general economic significance of different methods of valuing inventories? Do methods such as Lifo which exclude inventory profits and losses from taxable and business income tend to accentuate or to reduce economic fluctuations? Do they tend to promote efficient or inefficient business operations?

The social justification for the use of various methods of inventory valuation in determining taxable and business income rests largely on the answers to these questions; unfortunately, though, the answers are not clear-cut. Two largely opposing influences are at work. Traditional methods of inventory valuation which include inventory profits and losses in income tend to exaggerate the severity of economic fluctuations through their effect on management and investor expectations. On the other hand, the effect of the same methods on the cash position of business tends to work in precisely the opposite direction. The problem is to assay the relative strengths of these two opposing tendencies.

So far as business and investor expectations are concerned, the inclusion of inventory profits and losses in income tends to accentuate waves of optimism and pessimism. The unwise business decisions often made by business executives who misinterpret inventory profits and losses have been forcefully described as follows by Mr. H. B. Arthur of Swift & Company:

> In the first place it should be stated that most businessmen have failed to realize that in periods of rising prices their reported profits are not all real. They assume that their books record profits which are in available form, ready to be distributed as dividends or to be used for expanding the business,

or for retiring its funded debts. They proceed to use them in one of these ways. The first thing they encounter is a shortage of cash — the inventory profits are not cash, but inventories. The next step, however, is to turn to the banker who is ready to lend money to a business which has a strong working capital position, particularly one which is reporting substantial profits.

It is only natural that a profitable business should declare dividends — particularly if there is a penalty tax on undistributed profits. Moreover, it is a time-honored custom to associate the increased use of bank credit with the coming of prosperity.

Money is borrowed not only to be distributed as dividends, but also to "expand the business" with new plants or equipment, increased overhead or sales expenses. In any event the borrowed money is spent. It is often spent for things that will not make it easy to pay back loans at a later date, as in the case of borrowing money to pay dividends, where it is perhaps assumed that the bank debt can, in a rough way, be set off against the higher value of the inventory.

As prices move upwards, the large reported profits are regarded uncritically as true earnings of the business. Upon the expectation that they will continue (not realizing that they are as temporary as the period of advancing prices) the business community — as well as the security markets — is prone to capitalize these fictitious earnings and to use them as the basis for grandiose plans for expansion. Demands for higher wages are readily granted. All the elements of a good-sized boom are present.

Then, as the price rise begins to taper off — note that it does not require an actual price downturn — the increment to profits which had been coming from price increases dries up. Business appears to be less profitable. A general program of retrenchment begins, and with it the downward spiral. The disappearance of profits is quickly followed by the desire to "unload," and prices turn sharply downward.

As inventory values fall, the inventory profits go very much as they came. They prove to have been both fictitious and temporary. But not so the debts that were incurred in the rush to spend the so-called profits. It now becomes apparent that it was not profits that were spent, but borrowed money. And the debts are added burdens to plague the depression-ridden executive.

This is, of course, a very sketchy and inadequate outline of the sequence of events, but it serves to indicate the seriousness of failure to recognize the fictitious nature of inventory profits.[1]

Do businessmen actually react in the manner described by Mr. Arthur? What part do business expectations play in economic fluctuations? To what extent do high levels of profits reflecting in part inventory price rises promote unsound investment expansions, dividend declarations, and wage increases? In the downward phase of the cycle, how much impetus is given by unwarranted pessimism attributable to a false interpretation of inventory losses? These are basic questions too far reaching in their implications to be fully answered in this study; nevertheless, a tentative treatment of the issues which they raise may be helpful.

The force of Mr. Arthur's argument (as he would be the first to recognize) depends largely on the extent to which most businessmen do, in fact, fail "to realize that in periods of rising prices their reported profits are not all real." In this respect the situation has changed significantly in the ten years since Mr. Arthur wrote his article. Inventory accounting and its relation to profit determination have been widely debated since 1939 under the combined impact of the authorization of Lifo for tax purposes, the wartime excess profits tax, and the pronounced price rises during and after the war. Traditional methods of inventory valuation have been critically appraised, often for the first time, by many executives. The top management of numerous companies has had to decide whether to adopt Lifo; regardless of the decision, the consideration of the problem has brought about an increasing awareness of the nature of inventory profits. As a consequence, misinterpretation of profit figures by business executives is undoubtedly less widespread today than, say, during the 1930's. To the extent that the nature of inventory profits and losses is more generally understood, business expectations and decisions are less likely to be seriously distorted, whatever the accounting procedure adopted.

It would be wrong, however, to conclude that businessmen in general fully discount inventory profits and losses in appraising their operations. The majority of business executives, especially of small and medium-size companies probably still do not fully appreciate the significance of price changes on their profit figures. This hypothesis is supported by the relatively little attention given to Lifo by small and medium-size companies. By way of illustration, one executive in an industry composed of relatively small companies commented in a recent interview (September, 1948) that some of its competitors, not on Lifo, were currently liquidating inventories at losses in order to meet maturing debt obligations. The debt of these companies was incurred, so it was reported, mainly to pay dividends and taxes computed on a Fifo basis — in addition, of course, to maintaining or expanding inventory commitments.

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[1] H. B. Arthur, "Something Business Can Do About Depressions," *Journal of Accountancy*, January, 1939, p. 10. See also Mr. Arthur's article, "Inventory Profits in the Business Cycle," *American Economic Review*, March, 1938, pp. 27-40.

Even among large companies occasional instances of surprising failures to appreciate the significance of inventory profits have been encountered. The controller of a major company, one of the two largest in its industry, stated that he was sure that several directors did not understand Lifo even though the company had been using the method for several years. An officer of a large manufacturing company, for instance, commented when questioned about inventory profits: "We don't have to worry about them; we never speculate in our inventories." An executive of a well-known food processing company complained about the burden of heavy taxes when profits were all tied up in inventories. When asked why Lifo had not been adopted, he asked what the term meant, and when told, remarked, "We couldn't use Lifo; our stuff spoils if we keep it too long." The president of another large company indicated that inventory profits were not a problem because "Our inventory is in the ground and we already own it." While these illustrations represent extreme rather than typical reactions, similarly vague and confused statements have been encountered in other instances, especially when the companies visited were not selected because they were known to have an active interest in Lifo.

In this connection it is not sufficient if only the financial officers understand the significance of reported profits. The important policy decisions are made by top executives and directors who often are not financial and accounting specialists. Unless these men thoroughly comprehend the significance of a particular profits figure, their judgment is likely to be distorted.

As a matter of fact, even in companies alert to inventory profits, executives have reported to us that the valuation of inventories still has a significant influence on company operations. They state, for instance, that when very high profits are reported, greater "laxness" and inefficiency creep into operations despite all efforts to eliminate them and that proposals for capital expenditures are approved less critically. In other words, these officers do not trust themselves and their organizations to discount completely the psychological effects of including inventory profits in income, even though the responsible officers of the companies involved are thoroughly awake to the problem.

Not all executives, however, would concur with the above statements. Other individuals interviewed have heavily discounted the indirect effects of Lifo, stating that in their companies it has had little or no influence on such decisions as dividend payments, wage levels, capital expansions, inventory purchases, and pricing policies.

So much for a generalized discussion of the extent to which inventory profits and losses are understood and discounted by the managements of companies not eliminating them from profits. We turn now to the opposing effects of changes in the cash position of business.

By increasing business tax liabilities when prices are rising and reducing them when prices are falling, traditional inventory methods, as compared with Lifo, tend to place business in a tighter cash position in expanding periods and in a freer cash position in declining periods. To the extent that major expenditure decisions are determined by cash on hand rather than by management appraisals of future prospects, these changes in cash position usually will tend to offset the unstabilizing effects on business expectations noted above.

In appraising the significance of these cash effects, several points should be noted. First, the cash effects are more important now than before the war because of the higher level of corporate tax rates. Each dollar's difference in taxable income in the 1930's ordinarily meant 13 to 19 cents' difference in tax liabilities; today it means 38 cents' difference. Thus, the cash-effects argument has increased in force while the business-expectations argument has been weakened by the better understanding of the nature of inventory profits and losses achieved in recent years.

Other considerations, however, minimize the importance of these cash effects. In appraising the implications of different inventory methods for the over-all working capital position of business one must look beyond the immediate effects on cash. Offsetting them are opposite changes in the accessibility of outside capital to business. Higher reported profits and larger inventory valuations — plus generally greater business optimism — will make bank credit and other borrowed funds more readily accessible to business when profit figures are swollen by large inventory profits, and balance sheets show a more favorable working capital position. Similarly, large and increasing reported profits should tend to raise security prices, thereby making equity capital more freely available on more favorable terms.[2] If the security markets are strengthened by higher reported levels of profits, companies with small inventory holdings may benefit as well as those whose inventory profits are large. Moreover, the same factors which make lenders and investors more willing to supply funds to business enterprises on favorable terms make management more desirous of obtaining them. These considerations may more than outweigh the immediate tightening of cash positions because of increased tax payments —

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[2] Security prices will not, of course, always be closely related to profit levels — either for the economy or for individual companies. The relationship may be upset by any number of other factors, economic and political. It would, however, seem difficult to deny that reported profits and security prices bear some relationship to each other, and that, generally speaking, high and increasing profits tend to strengthen security markets while low and falling profits tend to weaken them. True, dividend levels as well as profit levels undoubtedly influence security prices. But there is evidence that dividend payments, themselves, are influenced by the size of reported profits — at least during periods of rising prices (see pages 108–114 below). To the extent that this evidence is conclusive, it can be argued that reported profits influence security prices both directly and indirectly through their effect on dividend payments.

especially when large-scale expansions which would necessitate outside funds in any event are at issue.

In terms of the over-all economic situation, another offsetting factor should be noted. The above reasoning with respect to the immediate cash effects of taxing inventory profits implicitly assumes that the federal budgetary position will not be affected by the treatment of inventory profits. This assumption is of doubtful validity. Congress has shown a decided tendency, especially in postwar years, to reduce tax rates whenever a sizable federal surplus has accumulated. If all inventory profits had been excluded from taxable income in 1946 and 1947, federal revenues would have been about $2 billion lower in each of these years and the budgetary position that much tighter; under these circumstances Congress might not have reduced taxes as rapidly as it in fact did. If these reductions (primarily in personal income taxes) had not been made, the inflationary effect of additional funds which would have been made available to business enterprises by excluding inventory profits from income and thereby reducing corporate tax payments would have been offset by reduced funds in the hands of individuals on account of higher personal income taxes. But this is perhaps spinning the argument too fine.

A final qualifying point of greater importance remains to be made. The difference in the cash position of business under traditional inventory methods, as compared with Lifo, will by no means always have a favorable fiscal effect on the economy. The situation in 1933 and 1934 is a good case in point. Prices of many commodities rose very substantially in these years; indeed, the sharpest price rise in the 1932-1937 recovery phase occurred before 1935.[3] Manifestly, an expansionary fiscal policy rather than a restraining policy was appropriate for these years of early recovery from a deep depression. Most business enterprises, especially small firms and firms in cyclically sensitive industries, were in no condition after several years of very poor business to pay taxes on inventory profits in 1933 and 1934.

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[3] To illustrate, the monthly averageof the over-all Department of Labor wholesale price index rose by about 14% in 1934 over 1933; in comparison, the rise from 1935 through 1937 showed only a 15% increase over 1934 prices. To cite a more extreme illustration, prices of cotton and cottonseed more than doubled between 1932 and 1934. (The U. S. Department of Agriculture index was 47 for the 1932 monthly average of cotton and cottonseed prices and 99 for the 1934 monthly average.)

To restate the above point, the taxation of inventory profits and the deductibility of inventory losses are exceedingly blunt tools with which to implement a counter-cyclical fiscal policy. So far as general economic considerations are concerned, it would seem much wiser to adopt a concept of income which will promote intelligent decisions by business managements, labor, and government officials, and to rely on other means of achieving a balance between government revenues and expenditures adapted to the general economic situation.

Most of the above analysis has been stated in terms of the effect of inventory profits in times of rising prices. In general, the same analysis applies with the conclusions reversed for inventory losses in times of falling prices. To avoid unnecessary repetition the parallel reasoning with respect to inventory losses will not be developed in detail. We turn now to the specific company policies on which the reporting of inventory profits and losses may have important direct or indirect effects.

DIVIDEND POLICIES

Dividends in the aggregate will tend to be larger in years of rising prices and smaller in years of falling prices when inventory profits and losses are included in income — of this we can be reasonably certain. But how much larger and smaller it is difficult to say.

Two major factors combine to produce this effect.

First, the attitude of many managements toward dividend payments is undoubtedly influenced by the amount of profits currently reported. The feeling of prosperity, confidence, and sometimes even carelessness, engendered by a favorable profit showing will affect the dividend decisions of many managements, though not of all. The less critically the reason for an increase in profits is examined, the greater will be the effect of alternative methods of inventory valuation on dividends. The effect will also depend on the long-run dividend policy of individual managements. Companies which customarily maintain stable dividend payments will be much less affected by alternative methods of inventory valuation than companies which typically pay out a large percentage of each year's earnings as dividends.

This diversity of reaction has been apparent in our interviews. Executives of some companies have reported that dividend payments — not to mention other expenditures — are responsive to fluctuations in reported profits. Officers of other companies, on the other hand, have stated that their dividend decisions are governed by their company's need for funds as shown by projected cash budgets and that little attention is given to the level of profits as such.

Occasionally, strictly legal considerations influence management's dividend decisions. Dividends ordinarily can be paid only out of current income or earned surplus. As noted in the preceding chapter, a few companies have refrained from using Lifo because of the restrictions which it would place on their ability to declare dividends.

Stockholder pressure constitutes the second main reason causing dividends to fluctuate in relation to reported profits. Stockholders, by and large, regard reported profits as an indication of an ability to pay dividends and feel entitled to dividend increases when profits rise sharply. Management may feel impelled to bend to some degree to this stockholder pressure, even when the dictates of caution or the need for cash call for the retention of earnings. Executives of one or two companies have explicitly stated that they pay enough dividends "to keep the stockholders quiet." The payments required for this purpose presumably would vary with the size of reported profits.

No implication is, of course, intended that all stockholders will participate in the pressure for higher dividends. Some stockholders with very large incomes prefer that increased dividends not be declared, particularly if they are in a position to control the future policies of the company. Also, many small stockholders of publicly held corporations are too inert to make their views known. But after due allowance is made for these qualifications, the fact still remains that many managements are under real pressure from their stockholders to increase dividends when earnings show large increases, and the intensity of the pressure will be related to the amount of profits reported.

Dividend policies of some companies may also be influenced by the penalty tax on unreasonable accumulations of surplus (Section 102). In principle, the method of inventory valuation employed should have no effect on a company's vulnerability to Section 102, since the real need for retained earnings will be unaffected. But some managements may nevertheless feel, rightly or wrongly, that they are more vulnerable to Section 102 with inflated profits in years of rising prices, and hence declare larger dividends than if inventory profits were excluded from income.

These considerations will be partially offset by the opposing cash effects pointed out above. But the balance of the evidence, in our judgment, clearly indicates that the inclusion of inventory profits and losses in income will accentuate fluctuations in dividend payments.

Although our field work has been of some help in appraising the relationship of dividends to stated profits, most of the preceding discussion is admittedly speculative. Another way to approach the problem is to examine the aggregate data. In Charts 4, 5, and 6 dividends paid by all corporations (and by all manufacturing and all trade corporations) are plotted against reported profits after taxes and such profits adjusted for inventory gains and losses. The closer relationship which these charts show between dividends and profits as reported (without the inventory adjustment) constitutes at least suggestive evidence that corporate directors in the aggregate look more to stated profits than to adjusted profits (which more nearly approximate disposable profits) in determining dividend policies.

When dividends are plotted against unadjusted profits, the 1946 and 1947 points are approximately in line with the relationship existing since 1933.[4] But when dividends are plotted

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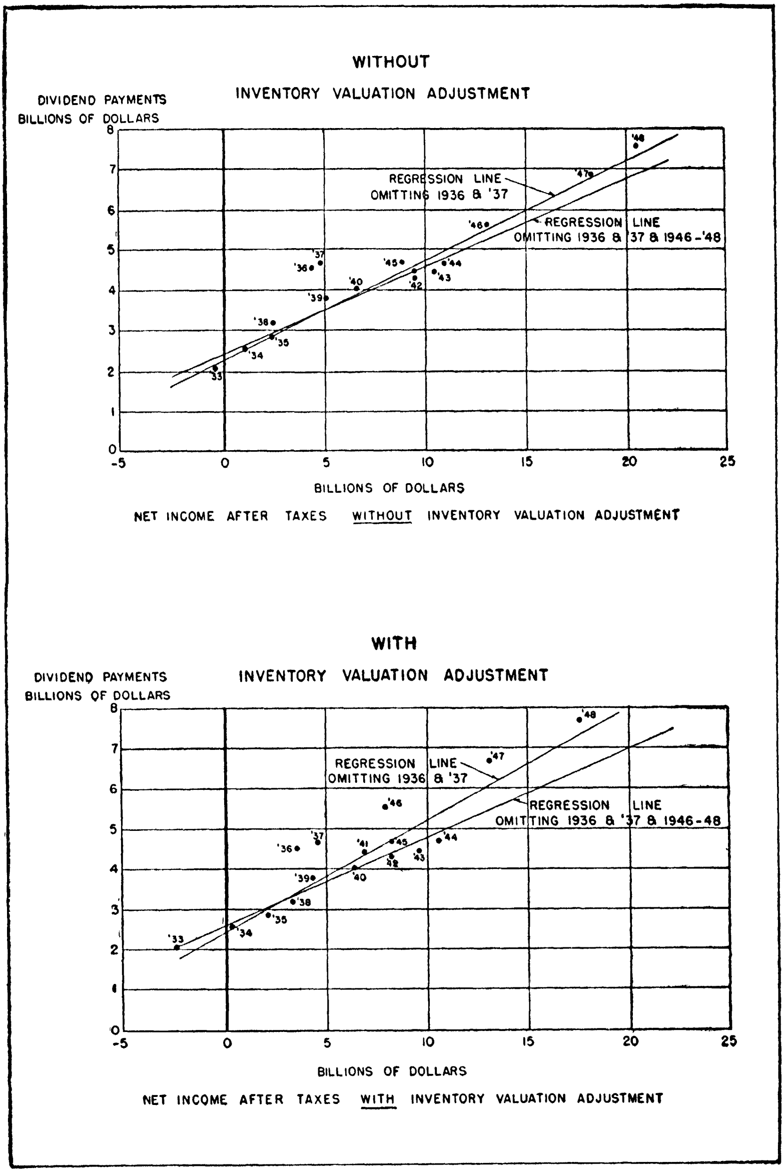
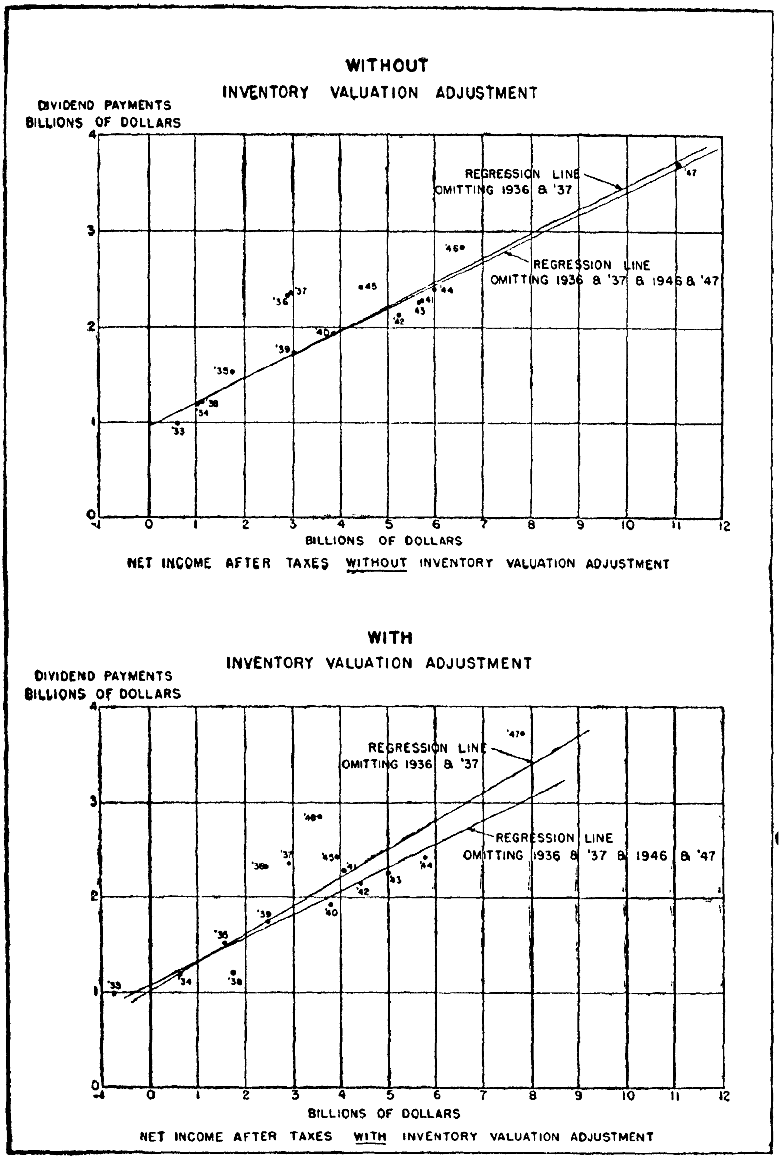
[4] Years earlier than 1933 have not been plotted since the relationship of dividends to profits follows a quite different pattern both in the declining years 1930-1932 and in the 1920's. The period from 1933 through 1948 was predominantly one of rising prices and expanding profits. In general, it would be reasonable to expect the relationship of dividends to profits to be different in periods of rising rather than of falling prices and profits; the tendency of many managements to maintain dividends at existing levels would operate in opposite directions in times of increasing and decreasing profits.

CHART 4. DIVIDEND PAYMENTS RELATED TO NET INCOME AFTER TAXES, ALL CORPORATIONS, 1933–1948



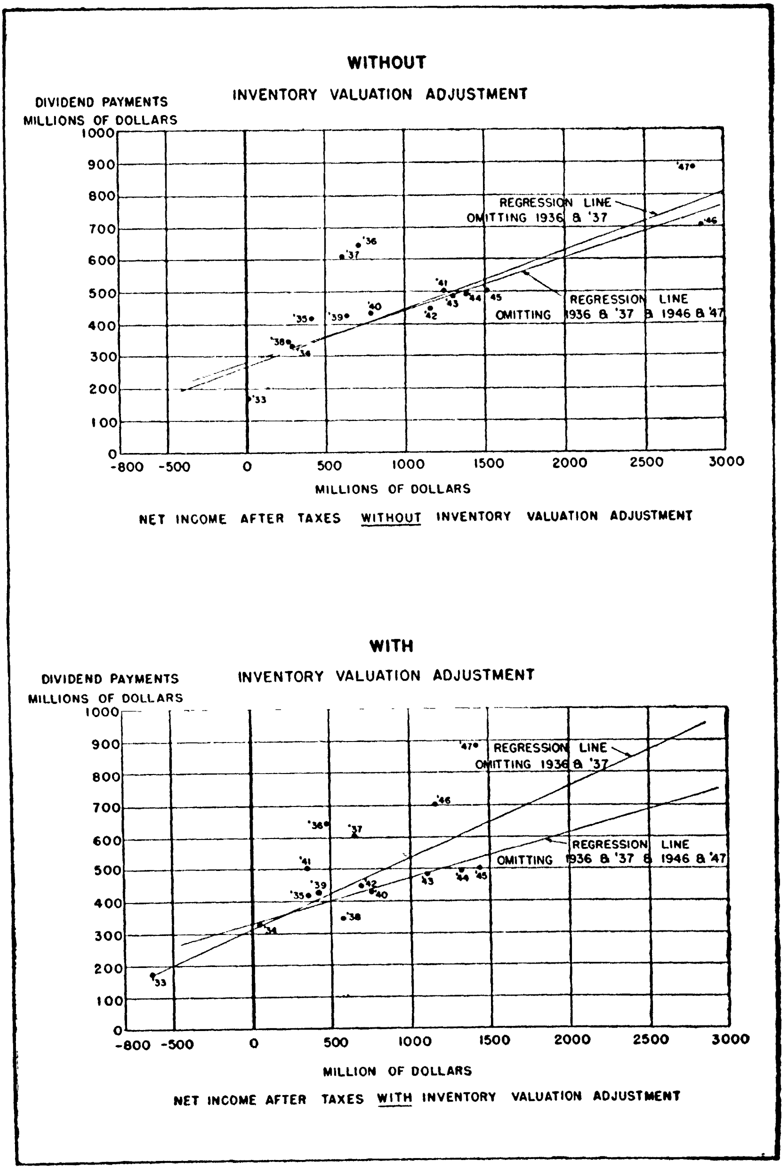
SOURCE: 1933–1943	*Survey of Current Business, National Income Supplement,* July, 1947
1944–1947	*Survey of Current Business,* July, 1948
1948	*The Economic Report of the President,* January, 1949

CHART 5. DIVIDEND PAYMENTS RELATED TO NET INCOME AFTER TAXES, MANUFACTURING CORPORATIONS 1933–1947



SOURCE: 1933–1943 *Survey of Current Business, National Income Supplement,* July, 1947
1944–1947 *Survey of Current Business,* July, 1948

CHART 6. DIVIDEND PAYMENTS RELATED TO NET INCOME AFTER TAXES, TRADE CORPORATIONS, 1933–1947



SOURCE: 1933–1943 *Survey of Current Business, National Income Supplement,* July, 1947

1944–1947 *Survey of Current Business,* July, 1948 against *adjusted profits*, the 1946 and 1947 points — the years for which inventory profits were largest — lie consistently well above the regression line representing the 1933-1945 relationship. For the other years in which inventory profits or losses were moderately large, 1933, 1938, and 1941, the divergences from the apparent line of normal relationship are much smaller with either profits concept and, except for 1941, the relationship is not improved by the use of unadjusted profits.[5] This statistical approach is subject to so many qualifications and uncertainties that great reliance should not be placed on its significance. It is, however, offered as suggestive evidence; if future years should follow the same pattern, more significant conclusions could be drawn by this procedure.

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[5] A number of technical points should be noted. First, the regression lines dotted on the charts are computed after eliminating, first, the years 1936 and 1937 and, secondly, 1936, 1937, and 1946-1948. The years 1936 and 1937 were excluded because the undistributed profits tax of those years is known to have markedly increased dividend payments, thereby throwing these years off the normal relationships. The years 1946, 1947, and 1948 were eliminated because the purpose of the charts is to show how dividends related to the two sets of profits figures when inventory profits were large; consequently, it seemed best not to allow these years of very large inventory profits to influence the regression line. As to other years, the Department of Commerce data tend to show somewhat lower profits for 1941-1944 than were ordinarily reported to stockholders because of the treatment of various wartime profits adjustments; the reverse statement holds for 1945. The 1945 point on the charts probably stands above the normal line for all corporations and all manufacturing corporations primarily because manufacturing corporations with heavy, but temporary, reconversion costs did not cut down their dividends to the extent that profits dropped. Perhaps also corporations deliberately made various optional expenditures on a large enough scale to affect the aggregate level of profits to reduce excess profits taxes before the tax expired at the end of 1945.

Another way of expressing these relationships is to compute correlation coefficients for the relation of dividends to the adjusted and unadjusted profits data for all years except 1936 and 1937. If the correlation coefficients using the unadjusted profits data are markedly higher than those using the adjusted profits data, the hypothesis that management pays more attention to unadjusted profits in determining dividend payments would be strengthened. Coefficients computed on this basis are as follows:

Industry Group	*Dividends against Unadjusted Profits*	*Dividends against Adjusted Profits*
All Corporations	.99	.93
All Manufacturing	.98	.91
All Trade	.94	.78

While the coefficients are higher in each case when unadjusted profits data are used, the differences are not great enough to attach statistical significance in a technical sense to this evidence.

WAGE POLICIES

At first sight, methods of inventory valuation appear to bear little relation to wage policies. The relationship is in fact indirect and its importance difficult to appraise; but a plausible case can be made that the major postwar wage increases have been significantly influenced by the inventory valuation methods employed in computing business profits.

In brief, the argument supporting this case would run as follows. Corporate profits, as estimated by the Department of Commerce, have contained over $5 billion of inventory profits in both 1946 and 1947 because of the predominant use of Fifo and related inventory methods. These profits have been widely accepted as an indication of business's ability to pay wage increases *without increasing prices.* Wage increases have been larger than would otherwise have been the case because of this appraisal of the ability of business to pay them out of profits.

How sound is this argument? In other words, is the above reasoning relevant to the facts? In answering these questions a sharp distinction must be drawn between the specific settlement reached in a particular wage dispute and the general social and political environment in which postwar wage negotiations have been conducted.

At the level of the individual bargaining table the ability-to-pay argument does not seem to have been vigorously pressed. At least, we have been so informed by the executives with whom we have discussed the problem — though our field investigation on this point has been very scanty. Labor experts concur in this judgment. For instance, Professor Slichter in a recent publication stressed the limited reliance that labor unions have placed on the ability-to-pay principle in negotiating for wage increases. He points out that even in the postwar negotiations with General Motors, where the ability-to-pay argument was widely publicized, it was not stressed by the unions at the bargaining table. Professor Slichter states:

> Recent discussions of ability-to-pay have led many people to expect unions to argue that the ability of an employer to pay a wage increase proves that he should pay it. Even in the General

> Motors negotiations in the fall of 1945, however, the union did not use the ability-to-pay argument in this way. In fact, ability-to-pay was not the positive basis for the union's demand on General Motors. It was used merely as anticipatory rebuttal. The union's argument for a wage increase was that higher wages were needed to avert a catastrophic drop in postwar markets.[6]

Even though not pressed at the individual bargaining table, the stated level of corporate profits may still have had an important influence on the national pattern of wage increases. As the concept of a national wage policy has become increasingly widespread, the relevance of profit levels to wage decisions has increased in importance. Union demands for wage increases and company resistance to them have necessarily been tempered by public opinion and government policies. Union publicity has stressed time and again the claim that large wage increases could be made out of record postwar corporate profits without requiring a price increase. The much discussed Nathan report, for instance, stated in December, 1946:

> Even manufacturing corporations, whose profit position has not improved nearly so much as that of all other corporations, can afford to grant their production workers an increase of 21 per cent in total earnings at the present time without reducing the corporate rate of return on net worth to a level below the 1936-1939 average of 6.9 per cent.[7]

This general point has been repeatedly emphasized by union publicists. To cite but one other example, a CIO publication stated early in 1948:

> As the result of soaring prices, profits have reached extortionate levels. These profits permit substantial wage increases without further increases in prices.[8]

To the extent that this publicity has convinced the public, labor's bargaining position has been greatly strengthened.

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[6] Sumner Slichter, *Basic Criteria Used in Wage Negotiations* (Chicago Association of Commerce and Industry, 1947), pp. 30-31.

[7] Robert R. Nathan and Oscar Gass, *A National Wage Policy for 1947* (Washington, Robert R. Nathan Associates Inc., December, 1946), p. 11.

[8] "C.I.O.'s 1948 Wage Case," *Economic Outlook*, February, 1948, p. 1.

The willingness of the public to tolerate large wage increases is tremendously influenced by whether it believes that the increases can come out of profits without necessitating price rises or that they will be largely passed on to consumers.

Our purpose here is emphatically *not* to pass judgment on the general validity of the above argument but merely to examine one part of it which is directly relevant to the present study. No conclusion one way or the other is stated or implied on the reasonableness of business profits in recent years; this fact cannot be too strongly stressed lest the following technical criticisms be misinterpreted as general condemnation of a position which has not been systematically investigated.

But on one detailed (but for this study important) point the Nathan report, and similar statements by union and occasionally government representatives, have clearly misinterpreted profits figures. Profits have been implicitly or explicitly treated as representing freely available cash from which wage increases could be paid, without requiring price increases, *but the profit figures used have included inventory profits*, except for companies using Lifo and related methods. Whether or not inventory profits should be included in income for some purposes, they clearly should be eliminated when these figures are used to estimate the free cash arising from operations which could be used to pay wage increases. Cash absorbed in the maintenance of the same quantity of inventory goods is not available for wage increases.[9]

In appraising the ability of manufacturing corporations to pay wage increases without raising prices, it makes a great deal of difference whether the profits after taxes of manufacturing corporations in, say, 1946 (on which the Nathan report analysis was based) are stated at $6.6 billion, or, after the inventory valuation adjustment, at $3.6 billion; or whether their undistributed profits are stated at $2.8 billion, or, after the inventory adjustment, at $700 million.

From the viewpoint of business management, it is important to recognize that profit figures almost certainly will continue to be interpreted by the public as though they represent disposable cash. Business management may repeatedly stress the fact that this interpretation is inaccurate, but it is not likely to get such a subtle point as this across to the public. The only effective way in which business can hope to obviate such misinterpretations is to report profits on a current-cost basis, thus excluding inventory profits and losses from income. In appraising the wisdom of various inventory methods, this consideration should rank high in importance.

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[9] Inventory adjustments are of course only one of many needed to bridge the gap between a profits figure and estimates of available cash. A thorough critique of the above argument would need to examine all aspects of the problem, but such an examination is not pertinent to our study.

In summary, while specific wage settlements have not relied heavily on the ability-to-pay argument, the level of corporate profits has become increasingly important in influencing the general bargaining position of labor and management in major wage disputes. To the extent that the inclusion of inventory profits in income has given the public and labor (not to mention management) a false impression of the ability of business to pay wage increases without increasing prices, it has probably resulted in larger wage increases — thereby accentuating the general inflationary pressures of 1946-1948.

SIZE OF INVENTORY HOLDINGS

Two types of points warrant discussion under this heading. First, Lifo has certain very definite effects on the size of physical inventories held by Lifo companies at the end of a year, but these effects to date probably have been too restricted to be of major economic significance. Secondly, through their effect on business expectations different inventory methods (say, Lifo versus Fifo) probably have much more important, but less easily identifiable, effects on purchasing policies and hence on economic fluctuations.

As to the first point, the tax incentives are strong for most companies now on Lifo to maintain relatively constant physical inventories. Most Lifo inventories are carried at prices well below current levels. If these inventories are reduced, as of the end of any taxable year for any category of goods, the difference between Lifo costs and current costs will be brought into income. With the pronounced price rises of recent years, the effects on income will be large; hence the tax incentive not to liquidate Lifo inventories and incur increased tax liabilities.

Tax incentives also tend to discourage physical increments to Lifo inventories when prices are high. Since such increments must be carried permanently at their acquisition costs, regardless of future price declines, it is obviously desirable to build up physical inventories at as low prices as possible.

A Lifo company may, however, get out from under inventory increments acquired at high prices by liquidating them in later years; in this event the liquidated goods will be charged against income at their high book valuations. Thus, the tax incentives to hold inventories down to beginning-year quantities are not so strong as those to build inventories up to this level. If Lifo inventories are expanded in periods of high costs, the inability to reduce income by writing down the high-cost increments during a period of future price decline can be overcome at the taxpayer's option by the actual liquidation of these increments as of the end of any year. If, however, Lifo inventories are partly liquidated when inventory costs are high, the income resulting from charging low-cost Lifo inventories against current sales must be taken into income immediately and taxes be paid on it with no opportunity for later offsetting adjustments. The special dispensation given to involuntary wartime liquidations constitutes the only exception to this last statement.

Our field inquiries clearly show that most managements on Lifo watch closely the position of their inventories as of the end of the year. In particular, a deliberate effort is ordinarily made to avoid inventory liquidations unless business conditions conclusively point to the wisdom of such liquidations. Inventory holdings by Lifo categories are usually reviewed two to three months before the end of the year, if not continually during the year, and steps are taken to replace liquidated inventories in the absence of strong business reasons to the contrary. Replacements typically are made by accelerating purchases although a few instances have been reported in which deliveries have been slowed down to build up inventories. In three industries — meat packing, tanning, and petroleum — executives have reported to us that bidding near the year-end for the replacement of liquidated Lifo inventories on occasion has had a noticeable effect on the general market situation.

Parenthetically, it should be noted that broad Lifo groupings often permit a company to get rid of specific inventory goods without drawing down its Lifo base inventories. For instance, one company with an unusually well administered Lifo setup systematically reviews all items in a given inventory group when it is evident that business needs will require a marked increase or decrease in a particular item. Oftentimes, such increases or decreases can be offset by reverse shifts spread over other items in the same Lifo group. Thus, to a degree at least, the Lifo base can be retained, or high-cost increments can be avoided, while the inventory is kept in balance with business needs. With narrower inventory groupings such balancing adjustments would not be possible.

The economic significance of this incentive to replace liquidated Lifo inventories within the year varies depending on the particular circumstances. In some industries — iron and steel is the outstanding illustration — supplies have been so short and demand so urgent in recent years that purchases have been made on the maximum possible scale quite apart from these tax incentives. Indeed, officers of several steel companies expressed concern in interviews in October, 1948, that they might be unable to replace their involuntary wartime liquidations by the end of 1950, the statutory deadline to qualify for relief. In other industries, the demand for materials clearly has been affected by purchasing policies determined by Lifo incentives, but the effect thus far probably has washed out over a relatively brief period and has not been of major over-all importance.

If the end of a year should happen to coincide with a change in underlying economic conditions, very difficult problems would be raised. To illustrate, a textile manufacturer reported that in the autumn of 1947 he was faced with the problem of whether to replenish Lifo inventories depleted during the year. He doubted the wisdom of building up inventories despite the uncertainties in the cotton market but decided to risk being caught with high-priced inventory goods in order to protect his Lifo base. He had not decided by the following July, when the situation was reported to us, whether his decision was wise.

At some future date many manufacturers will be confronted with similar decisions. Depending on the particular circumstances, the incentives to maintain purchases could tend to stabilize a threatening downturn in prices and business activities, or, alternatively, could cause many companies to increase further already overextended inventory commitments, thereby accentuating the crash when it comes.

Thus far we have discussed mainly the incentive to replace liquidated Lifo inventories. As previously noted, Lifo also exerts some pressure against large increases in physical inventories when prices are high. To the extent that this pressure is effective, cyclical fluctuations should be moderated; inflationary pressures and inventory accumulations during the upswing would be curbed and the subsequent reaction should also be less severe.

Our field evidence on this point is much less conclusive than on the question of replacing liquidated inventories. Many of the Lifo companies interviewed have had such difficulty maintaining adequate stocks of inventory goods on hand under postwar supply conditions that for them the question of holding down inventories has been academic. But, even so, several companies have reported that Lifo exerts a definite stabilizing effect on the size of inventories in both directions. For instance, one person commented:

> If you have too little inventory compared to your Lifo base, you buy up stock; when six or seven companies are trying to do the same thing you run the market ragged. Should you be too high on certain goods in comparison with your Lifo base, you cut prices to move out the goods. Thus, operating decisions are colored by the operation of the accounting system.

It is hard to believe, though, that Lifo will exert major economic effects in this respect.

So much for the more or less technical effects of Lifo on purchasing policies and inventory holdings. While these effects are interesting and significant, they probably can be characterized as causing ripples (though possibly large ripples) on the broad waves of inventory accumulations and liquidations. For the economy as a whole, the more important question is: Do different inventory methods affect these major waves? Here our discussion can be only speculative; it resolves down to the dichotomy already stated. Are the effects of wider swings in business expectations and in the accessibility of outside capital stronger or weaker than the opposing immediate cash effects? On balance, the former effects appear to us stronger; but we have not investigated this question intensively and hence do not present this judgment as a conclusive finding.

PLANT AND EQUIPMENT EXPANSIONS

This subject has not been pressed, since we hope to make a separate investigation of the effect of taxes on the acquisition and retirement of assets at a later date. In general, the argument — so far as inventory valuation effects are concerned — would run in much the same terms as that with respect to the preceding expenditure decisions. When prices are rising, the favorable effects on business expectations of including inventory profits in income would have to be offset against the immediate adverse cash effects. When prices are falling, the considerations are reversed.

Major plant and equipment expenditures, though, generally cannot be financed mainly with funds available from current earnings. Outside capital must ordinarily be obtained unless large amounts of liquid assets have been accumulated in earlier years. Hence, as they bear on plant expansion decisions, the effects of different methods of inventory valuation on the availability of outside funds frequently may be more important than the immediate cash effects.

PRICING DECISIONS

Once again, this topic is much too vast to be treated systematically. The following remarks are intended merely to pass on to the reader interesting comments on pricing decisions picked up during our field interviews; they should not be interpreted more generally than this.

Most of the executives who commented on pricing decisions in our interviews doubted that the use of Lifo has had important effects. A few men reported, however, that Lifo had exerted pressure tending to make selling prices more immediately responsive to cost prices, especially on a rising market. One executive of a large company manufacturing a consumer good product stated that the pricing policies of his company definitely had been influenced by the use of Lifo. Price adjustments are now made more or less simultaneously with changes in raw materials prices whereas formerly they were not made until the inventory on hand, acquired at lower prices, was worked off.

An interesting observation on the potential effect of Lifo in periods of price decline and business recession has been made by Mr. Samuel J. Broad, a prominent public accountant. Mr. Broad writes:

> The depression of the early 1930's was deepened by an unwillingness to reflect the inventory losses which would have to be taken under the historical cost method if selling prices were drastically reduced. When prices decline, to avoid showing the loss we put off selling at prices sufficiently low to create demand, and we put off buying for lack of markets. Lower selling prices based on lower replacement costs should promote more sales. Dollar sales might fall. Real national income, however, is not measured by dollar sales but by productivity. If in accounting for inventories and depreciation we could approach more closely the economic view of income as what is left over from revenues after providing for replacement of goods and services consumed we would change these psychological factors. Encouragement to maintain or increase inventories would be lessened when prices are advancing. There would be encouragement to produce and sell at lower prices when cost of replacement falls. This could not fail to have an effect in stabilizing employment. Peaks and valleys of profits would be less sharp. . . .[10]

The degree to which Lifo will affect the willingness of businessmen to reduce prices in times of recession can hardly be predicted in advance, but Mr. Broad's analysis does point to a potentially important effect of the method.

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[10] S. J. Broad, "Effects of Price Level Changes on Financial Statements," *N.A.C.A. Bulletin*, July 1, 1948, pp. 1347-1348.

In one other instance a possible indirect relationship between Lifo and pricing decisions was noted. Pricing decisions in at least one company interviewed are made at two levels: (1) merchandising policy which sets the prices of individual products on the basis of marketing considerations, competitive relationships, and so on, and (2) the overriding consideration of the amount of profits after taxes which the directors believe represents a reasonable rate of return to the stockholders. In recent years, following the second criterion, prices have been deliberately set well below the levels which would have maximized short-run profits. The directors rather have aimed at the more modest goal of what seemed to them a reasonable rate of return.

When prices are set more or less on this basis — as they may have been in substantial segments of the economy during the postwar inflationary years — the concept of profits used in determining the prices that will enable a company to earn "a reasonable rate of return" may have important effects on the prices actually set. To put the matter differently, with a given set of prices Lifo profits might appear moderate while profits computed by traditional inventory methods might appear, at least superficially, to be unreasonably high. Confronted by these facts, corporate directors might hesitate to charge as high prices with traditional inventory methods as with Lifo — both in terms of their personal appraisal of what seems reasonable and in terms of the probable public reaction. Indeed, irreverent souls have suggested that one of the major reasons for the adoption of Lifo by many large companies has been the desire to avoid reporting unreasonably high profits to the public.

SUMMARY

In conclusion, little can be said except to restate the dichotomy propounded throughout this chapter. On the one hand, traditional methods of inventory valuation tend to exaggerate the severity of economic fluctuations through their effect on business and investor expectations. But these methods, as compared with Lifo, tend to have precisely the opposite effect on the *cash* position of business. Relative to Lifo, traditional inventory methods impose a larger cash drain on business through increased tax liabilities when prices are rising and business activity is usually expanding, and a smaller cash drain when prices are falling and business is usually contracting.

For policy purposes, a decision must be made as to the relative weight to be attached to these opposing "psychological" and "cash" effects. The issue is exceedingly complex, and the following judgment is admittedly tentative and based on highly incomplete evidence. For what it is worth, however, we conclude that, so far as economic effects are concerned, it would be wise to adopt a concept of income which excludes from income the distorting effects of inventory profits and losses. An appropriate counter-cyclical fiscal policy can be better obtained by other means than relying on a concept of income which exaggerates the extremes of business and investor expectations and causes profits data subject to easy misinterpretation to be reported to the public.

CHAPTER VI

The Concept of Profits

WHILE the concept of inventory profits as used in this study was defined in the first chapter, our discussion thus far has deliberately by-passed the difficult tasks of systematically appraising the relationship of inventory profits to other components of profits. This issue can more easily be treated at this point, after many of the relevant considerations have been presented in other connections. Problems in connection with the inventory aspects of various concepts of profits will first be discussed after which the definition of inventory profits will be briefly considered.

A principal source of difficulty in discussing profits concepts is that the definitions appropriate for various objectives — e.g., management reports to stockholders, income tax accounting, and national income estimates — may differ. Even with an agreed objective — say, the measurement of national income — compromises may be required between a conceptually "correct" definition and one which is operational, given the existing factual information. Likewise, reasonable men may differ as to the appropriate definition for an agreed objective; an accountant would be likely to place major emphasis on conformance with generally accepted accounting principles, whereas an economist might weigh more heavily the probable effects of various definitions of profits on, say, government fiscal policies and the wage demands of labor. Finally, the characteristics of different companies and industries may have an important bearing on the appropriateness of different definitions of profits.

Since the appropriateness of different concepts varies with different uses of profits data, the major uses must be taken up separately. Business profits as computed for management use or stockholder reports, for the determination of taxable income, and for the measurement of national income, will be discussed in turn.

BUSINESS PROFITS

For business purposes at least four criteria have been suggested for deciding how inventories should be valued in determining profits.

The first and narrowest of these criteria — that the appropriateness of various inventory methods depends on the physical flow of goods — is now discredited and need not be discussed in detail. It is generally agreed that the statement of profits cannot rest on such arbitrary decisions as whether inventory goods are taken from the top or bottom of a stock pile.[1] Nevertheless, the flow-of-goods criterion has within the last decade clearly influenced the views of leading accountants.[2]

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[1] Mr. Carman G. Blough, Director of Research of the American Institute of Accountants, comments as follows on this criterion:

> *Lifo v. Fifo:* The fallacy of trying to justify the use of one method over another by merely considering the flow of goods becomes apparent by taking as an example the hypothetical case of two coal dealers dealing in identical grades of coal. One dealer when he receives a new lot of coal dumps it in a pile on top of the previous purchases of coal; while the other, having a somewhat more elaborate setup, also dumps new receipts of coal on top of previous purchases but in a hopper. The flow of the coal in the case of the first dealer would be on the basis of last-in first-out, assuming that he withdrew coal from the top of the pile. In the case of the second dealer, the flow of the coal would be on the first-in first-out basis since he draws it out of the bottom of the hopper. It does not seem to be in accordance with the usual concepts of income to say that each dealer should figure a different profit on comparable sales of coal simply because one sold from the top of the pile while the other drew it out of the bottom of a hopper unless, of course, each dealer could by some means specifically identify the cost of the coal purchased with the coal delivered. ["Changing Accounting and Economic Concepts Affect Methods of Inventory Pricing," *Journal of Accountancy*, September, 1948, pp. 205–206.]

In connection with Mr. Blough's last sentence, one is tempted to ask whether a policy of identifying the cost of the actual coal purchased with the coal delivered would not be the worst of all possible ways of determining income. At the least, it would be the way subject to the easiest arbitrary manipulation of income.

[2] Mr. George O. May (writing in 1943) relied heavily on the flow-of-goods criterion in deprecating the growing popularity of Lifo. (G. O. May, *Financial Accounting*, New York, The Macmillan Company, 1943, pp. 175-176.) Messrs. Paton and Littleton (writing in 1940) place even more emphasis on this criterion. For example they write: "In the development of a policy or procedure designed to divide the stream of production costs into inventory on the one hand and cost of sales on the other, a basic requirement is the adoption of a clear conception of the manner in which the component elements move through

A second criterion, and one which would perhaps be most widely accepted by accountants, is that the appropriateness of the basic methods of allocating inventory costs depends on the relationship of sales to cost prices. According to this view Lifo should be restricted to industries in which cost and sales prices fluctuate closely together. The Committee on Accounting Procedure of the American Institute, for instance, explains its approval of all the common assumptions as to the flow of cost factors as follows:

> . . . These methods recognize the variations which exist in the relationships of costs to sales prices under different economic conditions. Thus, where sales prices are promptly influenced by changes in reproductive costs, an assumption of the "last-in first-out" flow of cost factors may be the more appropriate. Where no such cost-price relationship exists, the "first-in first-out" or an "average" method may be more properly utilized. . . .[3]

While this statement probably reflects the prevailing view among accountants, the tentative language in which it is expressed is indicative of the unsettled state of accounting thought on the question of inventory pricing.[4]

Essentially the same view as that just quoted has been expressed by Mr. Blough. After describing the fallacy of trying to justify one method over another by the flow-of-goods concept, he writes:

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the enterprise." Messrs. Paton and Littleton deny the validity of Lifo even for industries in which both sales volume and raw material prices fluctuate widely over short periods of time, stating that ". . . artificially smoothed or averaged incomes should not be reported as the actual earnings of particular twelve-month periods." (W. A. Paton and A. C. Littleton, *An Introduction to Corporate Accounting Standards*, Chicago, American Accounting Association, 1940, pp. 78-79.) Messrs. May and Paton have, of course, greatly modified their positions in the light of the sharp postwar price rise and the problems created by it.

[3] *Accounting Research Bulletin, No. 29*, "Inventory Pricing," July, 1947, pp. 237–238.

[4] Mr. Carman G. Blough emphasizes this lack of consensus in a recent article in which he states: ". . . Some accountants say Lifo should be considered more desirable than Fifo in all cases as a method of relating costs to revenues and should be recommended for all companies. Others contend that Lifo should be rejected on the grounds that Fifo more fairly reflects profits under all circumstances." [Op. cit., p. 207.] In other words, the usual accounting maxim that costs should be matched against related revenues is of little help in deciding how inventories should be priced. This maxim begs the real question, namely, which costs are in fact to be considered related to which revenues?

> We will reach more realistic conclusions as to the merits of the different methods of allocating inventory costs between periods if we consider them to reflect assumptions regarding the flow of *costs* not necessarily related to the goods.
>
> In accordance with this view Fifo might be said to assume that . . . current sales are made at prices unrelated to current costs and are being covered by costs incurred prior to the sales. Such might be the case, for example, where a product bearing a relatively fixed price is made or acquired for stock and a supply of goods is maintained to meet sales as they occur.
>
> Lifo and base-stock, on the other hand, might be said to assume that there is a close correlation between current sales prices and current purchase or production costs; that, while the specific goods delivered may come from stock on hand, the costs of current purchases or production are incurred to cover current sales. This line of reasoning might be appropriate — for instance, where a company bases its prices on current costs.[5]

Parenthetically, it should be noted that some accountants are less concerned about the specific inventory procedures used than they are that essentially the same methods be used by roughly comparable companies. How else, they ask, can the progress of one company be measured against that of another?

Until the last few years, at least, this emphasis on uniformity of practice clearly has been an argument in favor of accounting orthodoxy and against such little used methods as Lifo. By and large, the extension of Lifo since 1939 has introduced so much disparity into the accounting practices of comparable companies that it has become extremely difficult to make meaningful intercompany comparisons in many industries. The disadvantages of this lack of comparability are admitted even by Lifo enthusiasts.

Now that Lifo has spread so widely among the large companies in many industries, however, comparability among these companies could be achieved about as easily by the further extension of Lifo as by its abolition. But to achieve real comparability this extension would have to be accompanied by a greater standardization of Lifo procedures and a much more complete disclosure as to how the method is applied.

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[5] Ibid., p. 206.

A third criterion for deciding on methods of inventory valuation is that profits should be brought more nearly into line with the disposable cash arising from operations. Historically, this criterion has been urged by business executives who have looked to the effect of different concepts of income on management decisions, stockholder reactions, labor union policies, and frequently on general economic stability. The views of various executives of base-stock or Lifo companies presented in earlier chapters illustrate this emphasis.[6] Moreover, this emphasis is not an afterthought conjured up to justify recent, tax-inspired extensions of Lifo. As Professor Walker stated, writing as early as 1936:

> One conclusion as to the measure of net income . . . seems to be common to the arguments of all these users of the base-stock method of valuation, or of any of its variations. This conclusion is that greater practical emphasis should be given to the need for restricting income withdrawals to amounts which may be appropriated without impairing the capital contributions of investment equities as viewed from the perspective of continuing operations. To state this another way, . . . net income . . . for possible distribution should be limited to that share of bookkeeping return which is appropriable and consumable in the sense that some reasonable justification holds good — so far as business enterprising permits — for feeling that the basic income-producing estate will remain intact. Expressed less academically, perhaps, the thought can be put this way: *that the concept of the long-run net cash proceeds of operations should serve as a practical year-in, year-out guide to the reporting of net income.* (Italics added.)[7]

If Lifo can be justified as a means of bringing profits more into line with the disposable cash arising from operations, it is applicable to many industrial areas which do not meet the more rigorous test of the concurrence of sales and cost price fluctuations. Such diverse activities as department stores and manufacturers of heavy equipment — say, International Harvester or Caterpillar Tractor — could qualify on this basis, although selling prices in neither of these industries are systematically and immediately adjusted with each change in cost prices.

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[6] See, for instance, Chapter IV, pp. 67-70, and Chapter V, pp. 101-103. For additional illustrations see R. G. Walker, "The Base-Stock Principle in Income Accounting," *Harvard Business Review*, Autumn, 1936, pp. 76–94.

[7] Ibid., p. 85.

Since about 1946 a vigorous minority of accountants, led by such men as Messrs. William Blackie, Samuel J. Broad, George O. May, and William A. Paton, has led an active campaign to revise accounting practices so as to match revenues with costs computed *at current price levels* with respect to both inventories and fixed assets. This "current-cost" criterion can be considered for our purposes either as a fourth criterion or as a variation of the "disposable-cash" criterion. As applied to inventories the two criteria, though somewhat different in emphasis, give essentially identical results except when wide fluctuations in inventory quantities occur either within a given year or, more importantly, between years. Accountants supporting the current-cost criterion have explicitly discarded all reliance on assumptions as to the flow of goods, or the flow of costs adhering to goods, as a basis for their justification of current-cost accounting. They have taken the position that the elimination of the effect of pronounced price changes on corporate profits is of overriding importance to an intelligent interpretation of business operations and to the maintenance of a stable economy.

The analysis behind the current-cost and disposable-cash views need not be repeated here in detail since it has been discussed at length in earlier chapters, especially in Chapter V. In general, it is that, if inventory profits are eliminated from income during price upswings, management's temptation to engage in unwise expansions will be curtailed, and stockholder and labor pressure for unwarranted dividend and wage increases will be reduced. On the downswing, similar excesses of pessimism with equally harmful results will be forestalled.

But, as Professor Walker's summary statement implies, the position of the disposable-cash or current-cost advocates is valid only if inventory investments must be maintained intact "from the perspective of continuing operations." In other words, the case for excluding inventory profits from income rests largely on the degree to which the inventory — when viewed as a whole rather than atomistically — can be properly regarded as a fixed asset, a necessary continuing investment of the company. To the degree that inventories can be liquidated at will without impairing the long-run earning capacity of the company, the justification for excluding inventory profits from income is greatly weakened. Inventories then partake much more of the character of speculative holdings rather than of fixed assets, and income accounting for business purposes — in principle at least — presumably should reflect this fact. It is difficult to see why profits on such inventories should be deferred, although a strong case can be made in principle for segregating them from recurring operating profits.

While a sharp *conceptual* distinction can be made between the "fixed asset" and "speculative" components of inventories, the task of dividing the actual inventory holdings of a particular company into these two components would be much more difficult. The size of the "involuntary commitment" to inventories necessary to maintain effective operations varies greatly with the phase of the business cycle. Also, the reasons for maintaining inventory stocks on hand are so complex that the amount needed cannot be determined by a precise technical or engineering analysis, but rather must be based on informed judgments which might differ widely.[8]

It follows from this statement that any consistently applied accounting rule for distinguishing between the fixed and speculative components of inventories must necessarily be somewhat arbitrary. The Lifo procedure makes this distinction by defining the fixed component of inventories as, in effect, the physical volume included in both the beginning and ending inventories; the size of this component thus varies from year to year. As discussed at greater length in Chapter XI, the Lifo definition undoubtedly overstates the fixed component of inventories for specific companies in particular years. But over a relatively brief span of years Lifo inventories generally will be drawn down in the ordinary course of business operations to a reasonable approximation of a company's involuntary commitment to inventories. Thus, unless extreme emphasis is placed on the results of a specific year, the Lifo procedure can ordinarily be assumed to make a reasonably adequate working distinction between the fixed and speculative components of inventories.

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[8] The factors involved in defining the "involuntary commitment to inventory" and in distinguishing between it and speculative inventory holdings are discussed by Ross G. Walker, "Income Accounting and the Base-Stock Inventory," *Credit and Financial Management*, May, 1938, pp. 14–17 and June, 1938, pp. 14–16.

The differences between the disposable-cash and current-cost criteria can be illustrated by considering the problem of inventory liquidations. Under the disposable-cash criterion it would be quite proper to follow the strict Lifo procedure of costing liquidated inventories — excluding involuntary and temporary liquidations — at their book costs even though these costs may differ greatly from current costs. Advocates of the strict current-cost approach, however, would prefer that inventories be costed literally at their current replacement costs at the time of sale rather than as under Lifo at the most recently incurred costs not previously charged against sales.

This current-cost procedure would involve a much more radical departure from generally accepted accounting principles than does Lifo. In addition to complicating greatly the task of determining the cost figures to be used, it would charge sales with costs which had in fact never been actually incurred. In this sense the current-cost principle applied literally to inventories would be strictly analogous to the proposals to revise depreciation charges on the basis of high postwar price levels.

Differences between *current* and *most recently incurred* costs may be due solely to different seasonal patterns of purchases and sales during the year, with opening and closing inventory quantities remaining unchanged, or they may be due to changes in inventory holdings between years. For intra-yearly fluctuations even those who advocate the current-cost approach in principle probably would be willing to accept the Lifo procedure of charging the most recently incurred costs against sales as a reasonable practical application of this principle. If, however, Lifo inventories acquired in prior years are liquidated in large amounts, the case for at least earmarking the effect on profits of the difference between current and Lifo costs of the liquidated inventories becomes much stronger. Otherwise the figure for the operating profits of the year may be greatly distorted (indeed, sometimes even manipulated) by reporting gains not attributable to the operations of the current year. But it must still be recognized that gains from such inventory liquidations, unless they are temporary, do represent free cash made available to the management for other uses.

In concluding this comparison of the disposable-cash and current-cost criteria, the emphasis should be on their essential similarity rather than on the differences which occur in the event of large inventory liquidations. If these differences would arise frequently and have a major effect on income in the experience of any given company, this fact can perhaps be taken as an indication that neither criterion would be appropriate for the determination of its profits. The very fact of large and frequent inventory liquidations would constitute at least presumptive evidence that a large part of the company's inventories are variable rather than fixed in the sense in which we have been using these terms. To the extent that inventories are variable the ground is cut from under the major reason for holding them at an unchanged unit valuation.

For the most part the opponents of current-cost accounting[9] have not made a frontal attack on many of the claims of its advocates. The critics, at least among accountants, usually admit that the orthodox accounting concept of income is subject to dangerous misinterpretations by the layman in times of wide price fluctuations. They point out, however, that the extension of current-cost accounting has created many difficulties and much confusion because of the lack of uniformity in corporate reporting which it has left in its wake, and they lament the extent to which it has impaired the usefulness of the balance sheet. These critics also emphasize that a thorough-going application of the current-cost principle would encounter many practical difficulties especially in the fixed asset area.

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[9] In the remainder of this chapter the phrase "current-cost" is used to cover both the disposable-cash and current-cost criteria because of their close similarity.

In general, the critics have offered two alternative solutions in an effort to lessen the danger of gross misinterpretations of profits data. The first is that the accounting statement of income, computed on a traditional non-Lifo basis, be supplemented by a statement of "economic income" on a current-cost basis. The latter statement, they point out, could be used as a guide to the disposable cash arising from operations and to probable long-run earning power.[10] This alternative, if generally adopted, would meet most of the objectives of current-cost accounting, provided that the public could be persuaded that the figure for "economic income" constituted a better measure of basic earning capacity and disposable profits than the accounting concept of income. Moreover, this approach, if generally adopted, would eliminate most of the distressing lack of comparability and uniformity in current corporate reporting practices.

The second alternative is simply that the users of corporate reports should be educated to understand the significance of the traditional accounting concept of income. As one writer has stated:

> If transfers of computed profit from one year to another are socially desirable on the grounds that greater economic stability would result, then the approach might better be direct than oblique. What is needed is better understanding of the nature of the profit estimate and the treacherous assumptions that are made in order to get estimates for the short run. Management, labor, and government must learn not to be trapped by short-period estimates.[11]

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[10] In connection with long-run earning power, it should perhaps be noted that the inclusion of inventory profits (as here defined) in income will not necessarily overstate long-run earning power *provided* that selling prices are set exclusively in terms of their relationship to original (Fifo) cost prices to the total disregard of current replacement costs. Under these circumstances the Fifo method will not inflate profits above the amount represented by a firm's actual operating margin, although it will show profits in excess of those which could be regarded as disposable after provision was made to maintain physical inventories intact.

[11] C. A. Bliss, "The Reality of Inventory Profits," *Harvard Business Review*, September, 1948, p. 542. Numerous other critics have taken substantially the same position.

This view raises the issue as to whether it would be simpler to change accounting practices to conform more nearly to the public's interpretation of them or to change the public's interpretation. It is hard to see how anyone, after serious consideration of the difficulties inherent in the latter alternative, could realistically contend that an adequate public understanding of the accounting principles lying behind current profits reports can be anticipated in the foreseeable future. The problem is not solely one of understanding. It would be naive to contend that leading labor union officials, with expert accounting and economic advice at their disposal, have been "trapped" by postwar profits estimates, swollen by the effects of price rises. A comment more to the point would be that labor officials have used these data to trap the corporations that have released them. In other words, the problem is not simply one of education, complex as that would be in itself.[12]

To summarize, if one grants that the traditional accounting statement of profits is subject to dangerous misinterpretation, the alternatives are to change present accounting practices or to change the public. The former would seem to be infinitely more feasible than the latter.

The current-cost approach with respect to inventories has sometimes been criticized on the ground that consistency would require that all additional capital requirements resulting from price rises be charged against current income. The additional capital needed to finance accounts receivable and the requirements for replacing exhausted depreciable assets are cited as examples of such requirements.

With respect to receivables, it is true that higher prices will tend to increase the working capital needed to finance outstanding accounts receivable, though changes in collection periods may destroy or even reverse any close correlation between price movements and the value of outstanding accounts receivable. Frequently collection periods will be shorter in times of rising prices and generally improving business conditions than when prices are falling and business conditions typically are deteriorating. But investments in accounts receivable can hardly be termed a *cost* of sales, except to the extent that they must be discounted to their cash equivalent at the time of sale.[13] It might equally well be said that the increased cash "cushion" needed to operate a business at higher price levels should be charged as a cost of sales! The objective of the current-cost advocates (and the reasoning behind such inventory methods as Lifo) is *not* to abandon the income statement and substitute a cash budget, as is implied by the suggestion that income should be adjusted to changes in the working capital needed to finance receivables. Rather, their objective is to state costs in terms of current (or more nearly current) price levels, and thereby eliminate from income changes in the money value of nonmoney assets.[14]

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[12] For an interesting illustration of the problems encountered in trying to explain the true significance of profits computed according to the orthodox accounting concept of income, see the testimony on corporate profits in the *Hearings before the Joint Committee on the Economic Report* (Government Printing Office, 80th Congress, 2nd Session), especially that of Mr. George D. Bailey, pp. 78-106.

Any distinction between the treatment of depreciation and inventory accounting must be drawn on grounds different from the distinction just drawn between receivables and inventories. A full adoption of the current-cost principle clearly would require that depreciation charges be stated in terms of current price levels. But significant differences in the inventory and depreciation cases still remain.

To maintain a going business, a large portion of inventories must ordinarily be replaced promptly upon sale, usually with goods similar in kind to those sold.[15] Moreover, the cost of the replacements when made ordinarily can be readily determined within a reasonable margin of error.

Depreciable assets, on the other hand, are not generally replaced in amounts that coincide closely with annual depreciation accruals, however computed. Management typically has much more flexibility in timing fixed asset replacements than in maintaining inventory stocks. Furthermore, replacements of depreciable assets may not be similar in kind to those being depreciated. Technological improvements, for example, may permit the maintenance of productive capacity and even of earning power with substantially decreased capital investments in fixed assets. It follows from the preceding statements that replacements may actually be made at substantially different prices from those prevailing when the depreciation charges were taken. At a different level, the practical problems of measuring depreciation deductions on a current-price-level basis with a tolerable degree of precision present much greater difficulties than the measurement of current costs for inventories.

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[13] This discount could properly include a reserve for anticipated bad debts, an allowance for collection costs, and an interest charge for the time elapsing between the date of sale and the receipt of cash. In practice, though, allowance is usually made only for anticipated bad debts.

[14] It is significant that with few exceptions the receivables point generally has not been raised by professional accountants, who are in agreement that gains should be taken into income at the point of sale and that accounts receivable should be regarded as money assets. An exception to this statement is found in R. C. Jones, "Effect of Inflation on Capital and Profits: The Record of Nine Steel Companies," *Journal of Accountancy*, January, 1949, pp. 9-27.

[15] In industries with pronounced seasonal patterns such as meat packers or department stores there may be a lag of several months in the replacement of inventories needed to cover seasonal high points. For purposes of this comparison, lags of this duration do not vitiate the distinction here made.

Still another distinction is that for inventory accounting the current-cost position (at least as approximated by Lifo) does not charge income with more than the actual dollar costs incurred by the business. It simply reallocates the order in which purchases and other inventory costs are charged against sales.[16] In contrast, the current-cost concept applied to depreciation accounting would necessitate the deliberate charging against sales of more or less than the actual dollar cost of depreciable assets, depending on whether prices rise or fall.

These distinctions may, or may not, be sufficiently vital to justify a treatment of depreciable assets different from that of inventories. Since the problem of depreciable assets is to be examined at length in a later monograph in our series, the matter need not be pressed to a conclusion here. The preceding paragraphs are intended merely to indicate briefly the nature of the differences between the two problems.

TAXABLE INCOME

The standards which must be applied in deciding how to value inventories in determining taxable income are different from those applicable to a business profits concept. For the latter purpose, to repeat, the essential criterion is the usefulness of a given profits concept to management and to the public. In particular, the dangers of ill-considered management decisions or public policies based on misinterpreted corporate reports should be minimized. To this end, a strong case can be made for excluding from annual profits various nonrecurring gains and losses on the ground that their inclusion would distort current operating profits and hence not furnish the best guide for policy decisions. The exclusion of inventory profits from business income can be defended on this basis.

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[16] Some advocates of the current-cost principle would go beyond Lifo and charge all sales with costs computed at the same price level, irrespective of the timing of purchases. If this practice were followed, the above distinction obviously breaks down.

For tax purposes, on the other hand, these considerations are relevant only to the extent that tax requirements modify business accounting practices. Since tax returns are confidential, the problem of public misinterpretation simply does not arise, except as national income and aggregate corporate profits estimates are based on unadjusted tax data. Also business profits as computed for management and stockholder purposes may and do vary from taxable income, especially on such matters as the treatment of nonrecurring gains and losses not associated with usual operations.

From the tax viewpoint, different criteria, such as a consistent treatment of different taxpayers and different sources of income, are much more important.[17] To satisfy these criteria the tax treatment of inventory profits should be consistent with the general concept of taxable income.

Two characteristics of this concept are of special relevance to the taxation of inventory profits. First, the American concept of taxable income is very inclusive; by and large, all gains — recurring or nonrecurring — are taxable. In particular, capital gains, though subject to differential rates, constitute an integral component of taxable income. Secondly, income is subject to taxation only when realized.

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[17] Other relevant criteria for the determination of taxable income, such as economic effects and administrative feasibility, are discussed elsewhere (see Chapters V and VIII-XI) and hence are not treated here. In general, they do not point to a different conclusion. Various other problems remain, such as the practicality of distinguishing between the fixed and variable components of inventories, the appropriate tax treatment for inventory increments and decrements during the year, and the problems raised by seasonal fluctuation of inventories. These problems, though briefly considered in this chapter, are treated more extensively in Chapter XI.

The question with respect to inventory profits then is whether these profits can properly be regarded as unrealized in an economic sense. (There is, of course, no doubt that they constitute realized income in a legal sense.) As already indicated, the proponents of Lifo have long contended that — to the extent that inventories constitute an investment essential to the effective operation of a business — they can be so regarded. Under these conditions, while individual units of inventory are constantly turning over, the contention as developed above is that inventory as a whole is more analogous to a fixed asset. If this proposition is granted, increases in the market value of a constant quantity of inventory goods can reasonably be regarded as unrealized (indeed unrealizable) capital gains not appropriately subject to taxation.

To the extent, however, that inventories are held in excess of continuing needs and can be liquidated without danger to the long-run operations and earning power of the company, the analogy between inventories and fixed assets breaks down and with it the justification for exempting inventory profits from taxable income. This analogy also breaks down in one other respect. The Lifo method permanently excludes inventory profits and losses from income as long as the inventories continue to be held. In this respect, unrealized inventory profits — assuming prices have risen — are given more favorable treatment than unrealized capital gains on depreciable assets. Gains on depreciable assets which have appreciated in value are gradually and indirectly taken into income because depreciation charges on a cost basis understate the current market value of the capital consumed in production. In this respect the treatment of Lifo inventories is more analogous to that of land than to depreciable assets.[18]

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[18] This exclusion of a portion of inventory profits from taxable income until the inventories are liquidated has been cited by critics as a reason for not allowing Lifo to be used for tax purposes. The point obviously has force, but the decisive question is: How much importance should be assigned to it in appraising the whole issue? In this connection, it is important to note that, while the amounts excluded from income may be large in absolute size, or in relation to the income of a single year, they will ordinarily constitute a very small percentage of the aggregate income earned by any company over a substantial

NATIONAL INCOME

For national income purposes, to turn to the third use of profits data, the objective is to measure the physical quantity of goods and services produced (net or gross) in terms of a stated price level — usually average prices for the current year or for some base year. To achieve this measurement, sales and costs must be stated in terms of the same price level. It clearly would be wrong to measure sales in, say, 1948 prices and the costs of these sales partly in 1947 and partly in 1948 prices. But this is precisely what traditional corporate accounting does when inventories are valued on a Fifo or average-cost basis. The inventory valuation adjustment as computed by the Department of Commerce is designed to avoid such incongruities by placing cost prices on a current basis. It manifestly represents a necessary adjustment to profits as computed for national income purposes. This is not to say, of course, that for other than national income purposes profits sometimes may be appropriately computed without the inventory valuation adjustment.[19]

DEFINITION OF INVENTORY PROFITS

Before concluding this chapter some attention should be given to the reasons for defining inventory profits as we have in this study. Inventory profits and losses were defined in Chapter I as equal to the change in valuation placed on an equivalent physical volume of inventories held at two points of time, generally the beginning and end of a year. Thus defined, inventory profits depend upon and are measured by changes in the cost prices of inventory goods rather than of selling prices.

This definition has been chosen because most of the controversial issues relating to the concept of profits involve inventory profits as thus defined. For purposes of reporting business profits or determining taxable income the issue essentially is: Should such inventory profits and losses be in-

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period of years. It is, of course, quite possible that losses rather than gains will be excluded in the long run, since future prices may fall below Lifo base prices for many companies; they have already done so in a few instances.

[19] Problems created in the measurement of national income by the increasing use of Lifo are analyzed in detail in Chapter XII.

cluded or excluded from income? The same holds true for national income measurements.

To avoid confusion it should be emphasized that this is not the only sense in which the phrase "inventory profits" has been used. It is sometimes used to refer to speculative profits and losses arising from taking "long" or "short" inventory positions because of expected price fluctuations. According to this concept, inventory profits and losses necessarily involve fluctuations in the quantity of inventory goods on hand, the antithesis of the concept of inventory profits here used.

A definition which emphasizes fluctuations in inventory quantities would have obvious advantages for certain types of investigations such as a study of forward purchasing policies. A study of this problem would be interested, among other things, in evaluating the opportunities for maximizing gains by varying the quantities of inventories — especially raw materials — held in different phases of price and production cycles. It would also be interested in a careful classification of inventory data into various stages of processing, and an analysis of the relative sizes of raw-material, in-process, and finished-goods inventories at different stages of the cycle.

Still another usage of the term would regard inventory profits as arising from changes in selling prices, from an "additional, extra markup on existing stock," not from changes in cost prices. The significance of this concept has been developed in a recent article by Professor C. A. Bliss.[20]

For purposes of the type of questions investigated in this book one very significant distinction can be drawn between the concept of inventory profits here used and the "speculative-profits" or "selling-price" definitions, if we may so designate them. The definition here used measures gains or losses which from a broad business or economic viewpoint may be considered as unrealized and perhaps even unrealizable in any practical sense. The other two do not; from any viewpoint, profits measured by the speculative-profits or selling-price definitions are realized and, in themselves, represent cash gains to the business. True, these cash gains may be partly or wholly offset by inventory profits (as here defined)

[20] Bliss, op. cit., pp. 527-542.

which arise when coincident increases in cost prices are reflected in inventory values as new purchases requiring greater cash investments in inventories are made. The case for any exclusions from income, however, generally must rest on the significance of such increases in cost prices, not on the increase in selling prices.

CONCLUSION

Four main criteria have been considered for deciding how inventories should be valued in determining business profits: the flow-of-goods criterion, the relationship which cost and selling prices bear to each other, and the disposable-cash and current-cost criteria — the latter two being closely related. For the broad purposes of financial reporting it is concluded that the disposable-cash and current-cost criteria, applied to inventory accounting, have great merit in industries where a large and continuing investment in inventories must be maintained to support effective operations.

Essentially the same conclusion is reached in the discussion of the concept of taxable income. To the extent that inventories considered as a unit represent a necessary continuing investment to a firm, changes in values placed on a constant physical volume of inventories can be likened to unrealized capital gains and be appropriately excluded from current taxable income on this basis. The Lifo method in essence accomplishes this exclusion.

Similarly, it is essential to the proper measurement of national income that inventories on hand at the beginning and ending of the year be valued at the same price level. Otherwise the objective of national income accounting, namely, the measurement of the volume of goods and services produced in a given year, would be obscured by the element of price inflation or deflation which would be introduced by valuing beginning and ending inventories at differing price levels.

CHAPTER VII

The Traditional Lower-of-Cost-or-Market Method

THE preceding chapters have discussed topics or problems of general significance to business executives, economists, and accountants with minimum attention to a systematic description of methods of inventory valuation. In contrast, this and most of the following chapters are designed to present a systematic description and evaluation of inventory methods in common use for tax and business accounting.

As a preliminary to this discussion, the provisions of the tax law governing inventory valuation procedures should be summarized. In general, they constitute an endorsement of the "best accounting practice in the trade or business." The relevant portion of the tax law, which incidentally has remained unchanged since its original statement in the Revenue Act of 1918, reads as follows:

> Whenever in the opinion of the Commissioner the use of inventories is necessary in order clearly to determine the income of any taxpayer, inventories shall be taken by such taxpayer upon such basis as the Commissioner, with the approval of the Secretary, may prescribe as conforming as nearly as may be to the best accounting practice in the trade or business and as most clearly reflecting the income.[1]

This general statement was supplemented in 1938 and 1939 by specific provisions authorizing the use of the Lifo or "elective" method; detailed consideration of these provisions is undertaken in the next chapter.[2]

The Treasury regulations interpreting the general provisions quoted above first prescribe the circumstances under which inventories are needed. In general, taxpayers are required to take inventories whenever "the production, purchase, or sale of merchandise is an income-producing factor."[3] The inventory should include "all finished or partly finished goods and, in the case of raw materials and supplies, only those which have been acquired for sale or which will physically become a part of merchandise intended for sale."[4] Goods should be included in the inventory only if title is vested in the taxpayer; in principle, at least, sales law governs border-line decisions. But, as is frequently the case in inventory matters, when established trade usage runs counter to the letter of the law, the trade usage is often allowed for tax purposes provided that it is recognized as a sound accounting practice.

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[1] Internal Revenue Code, Sec. 22 (c).

[2] Minor amendments were made to these provisions by the Revenue Act of 1942; see Chapter VIII for details.

In so far as bases of valuation are concerned, the regulations recognize that inventory rules cannot be uniform but must give effect to trade customs which conform to the best accounting practice in the trade or business. The regulations also state that, in order clearly to reflect income, the inventory practice of a taxpayer should be consistent from year to year, and that greater weight is given to consistency than to the particular method followed, so long as the method used is substantially in accord with the regulations. The "cost" and "cost or market, whichever is lower" methods are singled out for special approval and are described as the bases most commonly used.[5] From other evidence the latter method is known to be employed much more widely than the straight cost method.

Despite the general endorsement of acceptable accounting practices by the Code and regulations, important differences have arisen between tax and accounting requirements in their specific applications. The following discussion, therefore, distinguishes between the formal tax requirements and general accounting practice in inventory valuation. But, at the outset, it should be emphasized that actual tax practice much more nearly parallels general accounting practice than do the detailed Treasury regulations. In other words, when long-established accounting practices fail to conform in detail with the Treasury regulations, the latter are likely to give way. This finding is to be expected in view of the common Treasury policy, cited above,[6] of not subjecting inventory valuation policies and procedures to rigorous audit.

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[3] Regulations 111, Sec. 29.22 (c)-1.
[4] Idem.
[5] Regulations 111, Sec. 29.22 (c)-2.

So much by way of general introduction. The remainder of the chapter discusses the lower-of-cost-or-market method — by far the most commonly used for both tax and business purposes — and is organized as follows. The concept *cost* is first defined both with respect to the items included in inventory costs and the allocation of these costs to specific accounting periods. Attention is given to the pertinent Treasury regulations, to generally accepted accounting principles, and to actual practice for both tax and accounting purposes. The conditions determining whether a cost or market valuation should be used are next considered. In addition to outlining the usual procedures under the lower-of-cost-or-market method this section points out the circumstances under which a straight cost or straight market method is acceptable. The concept *market* as used in tax and accounting practice is then defined. Finally, the relationship of hedging operations to inventory valuation methods is briefly discussed.

DEFINITION OF COST: ITEMS INCLUDED IN INVENTORY COSTS

Treasury Regulations

The Treasury regulations define cost as follows:

> Cost means:
>
> i. In the case of merchandise on hand at the beginning of the taxable year, the inventory price of such goods.
>
> ii. In the case of merchandise purchased since the beginning of the taxable year, the invoice price less trade or other discounts, except strictly cash discounts approximating a fair interest rate, which may be deducted or not at the option of the taxpayer, provided a consistent course is followed. To this net invoice price should be added transportation or other necessary charges incurred in acquiring possession of the goods.
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> iii. In the case of merchandise produced by the taxpayer since the beginning of the taxable year, (a) the cost of raw materials and supplies entering into or consumed in connection

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[6] Chapter IV, pp. 81–83.

> with the product, (b) expenditures for direct labor, (c) indirect expenses incident to and necessary for the production of the particular article, including in such indirect expenses a reasonable proportion of management expenses, but not including any cost of selling or return on capital, whether by way of interest or profit.
>
> iv. In any industry in which the usual rules for computation of cost of production are inapplicable, costs may be approximated upon such basis as may be reasonable and in conformity with established trade practice in the particular industry. Among such cases are (a) farmers and raisers of livestock . . ., (b) miners and manufacturers who by a single process or uniform series of processes derive a product of two or more kinds, sizes, or grades, the unit cost of which is substantially alike . . ., and (c) retail merchants who use what is known as the "retail method" in ascertaining approximate cost. . . .[7]

Accounting Definition of Cost

The accounting concept of cost, as applied to inventories, does not differ in essentials from the Treasury regulations just quoted. For instance, *Accounting Research Bulletin, No. 29,* the authoritative pronouncement of the American Institute of Accountants on the subject, states:

> The definition of cost as applied to inventories is understood to mean acquisition and production cost,[8] and its determination involves many problems. Although principles for the determination of inventory costs may be easily stated, their application, particularly to such inventory items as work in process and finished goods, is difficult because of the variety of problems encountered in the allocation of costs and charges. For example, under some circumstances, items such as idle facility expense, excessive spoilage, double freight, and rehandling costs may be so abnormal as to require treatment as current period charges rather than as a portion of the inventory cost. Also, except for the portion of general and administrative expenses that may be clearly related to production, it is generally accepted accounting practice to include such items as period charges and to exclude them from inventory costs (product charges). Selling

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[7] Regulations 111, Sec. 29.22 (c)-3.

[8] In the case of goods which have been written down below cost at the close of a fiscal period, such reduced amount is to be considered the cost for subsequent accounting purposes.

> expenses constitute no part of inventory costs. It should also be recognized that the exclusion of all overheads from inventory costs does not constitute an accepted accounting procedure. The exercise of judgment in an individual situation involves a consideration of the adequacy of the procedures of the cost accounting system in use, the soundness of the principles thereof, and their consistent application.[9]

"*Period*" *Versus* "*Product*" *Costs*

As the above quotations indicate, the chief problems arise in determining the portion of overhead or manufacturing expenses to be treated as inventory — or *product* — costs and those to be treated as direct charges to the current period, never to be taken into inventories. A research study of the National Association of Cost Accountants, based on a careful survey of about 150 industrial companies, provides the most definitive evidence as to actual practice in this regard. This study concludes:

> It was found that costs which can be directly or indirectly associated with the product and which are incurred before the goods go into the finished goods warehouse or shipping department are generally included in inventories. Among these included costs are administrative expenses having a definite relationship to manufacturing activities and in many instances expenditures for research and development and royalties. Shipping costs appear to fall on the dividing line between product costs and costs of selling and distribution.
>
> The study disclosed widespread exclusion from inventories of certain costs connected with manufacturing. These are under- and overabsorbed burden balances, variances from standard costs, research and development costs, and royalties. These items together with losses arising from inventory adjustments, are most commonly carried to cost of goods sold. . . .[10]

At first glance the question of which costs are taken into inventories and which are charged directly against income may appear to be of little practical consequence. Under many circumstances, however, the decision between these alternatives has a significant effect on the annual statement of income.

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[9] *Accounting Research Bulletin, No. 29,* "Inventory Pricing," July, 1947, p. 236 (issued by the Committee on Accounting Procedure, American Institute of Accountants).

[10] "Research Series No. 10, Costs Included in Inventories," *N.A.C.A. Bulletin,* August 15, 1947, pp. 1607-1608.

Although "the exclusion of all overheads from inventory costs does not constitute an accepted accounting procedure,"[11] a vocal minority of accountants has stressed the advantages of just such an exclusion in so far as the "fixed" element of overhead is concerned. This minority urges that a sharp distinction be drawn between *product* costs, which in fact vary with changing rates of production, and *period* costs which are primarily a function of time rather than of the rate of production. Product costs, the supporters of this view believe, should be carried through the inventory accounts while period costs should be charged directly against income in the year in which they are incurred.

It is claimed that income will be distorted if this practice is not followed. As one of the minority advocates puts the matter:

> If a relatively fixed dollar amount of expense [that is, fixed manufacturing overhead] is allocated to units of product, and more units of product, and consequently more fixed expense, are retained in closing inventory than were in opening inventory, manifestly more fixed expense is carried forward to the subsequent period through the medium of final inventory than was charged into the current period in opening inventory. The effect on income is that of not charging the current period with the full amount of fixed manufacturing expenses assessable to the period and consequently overstating income. Conversely, if the closing inventory is smaller than the opening inventory, the income of the current period is understated.
>
> The amount of distortion of income is contingent upon two factors: the degree of inventory change during the period, and the proportion of total product cost represented by fixed manufacturing costs. The larger the unit fixed costs and the wider the inventory variation, the greater will be the over- or understatement of income determined under conventional accounting procedures. . . .[12]

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[11] *Accounting Research Bulletin, No. 29.*

[12] Philip Kramer, "Selling Overhead to Inventory," *N.A.C.A. Bulletin*, January 15, 1947, p. 589.

Conventional accounting practice thus tends to cause income to fluctuate with changes in the size of the inventory even though sales remain constant. The mere fact that production is stepped up relative to sales will, in itself, cause a larger profit to be reported. Alternatively, the effect on profits of a sharp drop in sales may be partially offset by a continued high rate of production, even though the failure to cut back production may represent poor business judgment.

Moreover, these effects on income may be further exaggerated by the use of a standard burden rate in allocating fixed manufacturing costs to current production. If a standard rate is charged to each unit of production, the total burden will be overabsorbed in periods of above-standard production. The most common accounting procedure is to credit such overabsorbed burden to cost of goods sold, or directly to profit and loss. Thus, the effect of treating fixed manufacturing expenses as a *product* cost, rather than as a *period* cost, is compounded. An unnecessarily large burden rate is used in allocating manufacturing overhead to the goods contained in the ending inventory. At the same time the cost-increasing effects of this rate with respect to the inventory goods regarded as sold during the period are more than counterbalanced by including the full amount of the overabsorbed burden in the profits of the period.

In times of subnormal production, the use of standard burden rates will have precisely the opposite effect. The entire underabsorbed burden will be charged against the income of the period while less than a *pro rata* share of the total actual burden of the period will be included in the ending inventory.

The advocates of treating all fixed manufacturing costs as period charges claim that this procedure has other important advantages in addition to correcting what they regard as a distortion of income. They point out, for instance, that it facilitates intelligent management choices in reaching pricing and production decisions by distinguishing clearly between fixed and variable costs. The procedure is also claimed to simplify the preparation of break-even analyses and to eliminate the many complexities involved in the determination of "normal capacity" and standard burden rates.[13]

Apparently the chief objection to the procedure in terms of orthodox accounting practice is that it unreasonably understates inventory values by excluding from inventories costs actually attributable to their production. Inventory values as presented on balance sheets will be much less meaningful, since they will represent only part of the cost of the inventory. The force of this objection, however, is considerably weakened by the trend toward increasing emphasis on the income statement at the expense of meaningful balance sheet figures. When accepted accounting practice permits identical inventories to be carried at such widely different values as may result from the Lifo and Fifo procedures, objections against the exclusion of fixed manufacturing costs solely because they understate "true" inventory values lose much of their force — especially if the method used is fully disclosed.

The exclusion of overhead from inventory valuations is also criticized in terms of the practical difficulty of distinguishing between direct costs, which are clearly product costs, and overhead costs, which will be incurred independently of the rate of current production. The case for excluding part or all of overhead costs from inventory values rests largely on the feasibility of drawing such a line of demarcation. Finally, it is claimed that the treatment of normal manufacturing overhead as a period charge would distort income by not charging the full cost of goods sold against sales as of the time of sale.

While the exclusion of overhead costs from inventories does not constitute an accepted accounting procedure, reputable companies occasionally follow the procedure. For instance, in the National Association of Cost Accountants research study cited above, 12 out of the 150 companies surveyed excluded part or all of their overhead from inventories. Also, as noted in Chapter IV, in our field interviews one reason given by a few companies for not adopting Lifo was the fear of having to take up into inventory valuations, and hence into income, overhead costs which had previously been excluded from inventories for both tax and book purposes. The most forthright disclosure in a public report of the practice of excluding overhead from inventories that has come to our attention is contained in a recent statement of E. R. Squibb & Sons:

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[13] In addition to Mr. Kramer's article, cited above, the following articles urge strongly the merits of distinguishing sharply between *product* and *period* costs. These articles also cite a number of instances in which this distinction has been effectively made in business practice. J. N. Harris, "What Did We Earn Last Month?" *N.A.C.A. Bulletin*, January 15, 1936, pp. 501–526; C. N. Kohl, "What is Wrong with Most Profit and Loss Statements?" *N.A.C.A. Bulletin*, July 1, 1937, pp. 1207–1219; J. N. Harris, "The Case Against Administrative Expenses in Inventory," *Journal of Accountancy*, July, 1946, pp. 32–36; C. L. Clark, "Fixed Charges in Inventories," *N.A.C.A. Bulletin*, April 15, 1947, pp. 1006–1017. These articles do not all urge precisely the same solution. One of the articles, for instance, favors the inclusion of a fixed amount of overhead in each annual inventory calculation, the amount to be determined by what is regarded as a typical ending inventory for the business. This variation would give a different balance sheet valuation, but it would have the same effect on income as the complete exclusion of fixed costs from inventories.

> The company has consistently followed the practice of omitting overhead from inventory costs with respect to a major portion of the consolidated inventories; such omission is not recognized as being in conformity with generally accepted accounting practice. Computations indicate that had applicable overhead been included in the inventory valuation at the beginning and end of the year, the reported net income for the fiscal year ended June 30, 1948, would be increased by approximately $500,000. Of the total inventories, an amount of $14,936,655 is stated at the lower of cost or market of materials, plus direct labor and other direct costs (overhead excluded). The remainder, $8,229,569, is stated at the lower of cost or market (overhead included). Cost is determined substantially in accordance with the first-in first-out inventory method and market is based on replacement cost. Adjustments to the lower of cost or market are made on the basis of specific items.[14]

In conclusion, it should be noted that tax requirements have had little influence on accounting for fixed manufacturing costs. The accounting profession has taken a strong stand against excluding such costs from the inventory accounts — except when these costs are regarded as excessive. The Treasury regulations to the same effect have merely accepted the prevailing accounting practice.

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[14] E. R. Squibb & Sons, *Annual Report*, June 30, 1948, p. 16.

DEFINITION OF COST: ALLOCATION TO SPECIFIC ACCOUNTING PERIODS

After the items to be included in inventory costs have been determined, the second and more critical issue remains, namely, exactly what goods shall be assumed to comprise the inventory on hand? In the case of homogeneous goods purchased at different times at varying prices, it is necessary to decide which of the various inventory goods handled during the year (beginning inventories plus inventory goods purchased or manufactured) have been sold and which remain as part of the ending inventory stocks. This decision will determine the value of the ending inventory, and thereby affect the cost of goods sold and profit and loss items of the income statement. The procedure for determining which goods comprise the ending inventory often affects income much more than the widely discussed cost or market controversy.

For normal goods not identified with specific invoices, the Treasury regulations provide that the Fifo procedure be used in determining which goods are to be charged against sales and which are retained in the ending inventory. (An exception, of course, is made for companies using Lifo for tax purposes.) The regulations read:

> Goods taken in the inventory which have been so intermingled that they cannot be identified with specific invoices will be deemed to be the goods most recently purchased or produced, and the cost thereof will be the actual cost of the goods purchased or produced during the period in which the quantity of goods in the inventory has been acquired.[15]

That is, the earliest inventory goods on hand and those purchased during the year in the order of their purchase (the first-in goods) are charged against current sales, leaving the most recent purchases to be included in the ending inventory.

This requirement, however, is not literally enforced. Various statistical surveys uniformly show that for published reports cost is more frequently determined on an average-cost than on a Fifo-cost basis.[16] It may therefore be inferred that the same methods are used for tax purposes, since the unanimous testimony of accountants is that, with few exceptions, the same inventory methods are used for tax and book purposes.

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[15] Regulations 111, Sec. 29.22 (c)-2.

[16] See, for example, the tabulation of the National Industrial Conference Board in *Effects of Taxes upon Corporate Policy* (New York, The Conference Board, 1943), p. 53.

Unfortunately, we have been unable to ascertain the precise meaning of the term *average cost*; the evidence is conflicting and indicates that a wide variety of methods with substantially different short-term effects are encompassed by the blanket caption, average cost. The possible variations in the effects of various average-cost methods can be illustrated by citing two extreme versions.

One possible procedure would be to compute the sum of the costs of all inventory units handled, that is, of the beginning inventory plus purchases during the year, divide this sum by the number of units handled, and regard the resulting weighted average as the cost of the units remaining in the ending inventory. This variant of the average-cost method is intermediate to the Fifo and Lifo costing methods. All inventory goods handled during the year affect the value of the ending inventory equally, not merely those most recently purchased or first purchased, up to the amount of the ending inventory. For this reason the book value of the ending inventory ordinarily will not approximate so closely its current replacement value under this version of the average-cost method as under Fifo.[17]

If the opening inventory has the same value under the two methods and if a steady price rise occurs during the year, inventory profits will be smaller under this average-cost method than under Fifo. Moreover, in the event of a long-run price increase the average-cost method, as here defined, will show somewhat smaller and delayed inventory profits than Fifo, since the effect of inventory goods held at lower prices will never be completely eliminated from the inventory valuation. But the difference will be relatively small, especially if the period is long and the rate of inventory turnover relatively rapid. While no prediction of the relative size of inventory profits under the two methods can be made for any specific year without detailed inventory and price data, examples of situations in which the average-cost method will show larger inventory profits than Fifo in a single year can easily be constructed.

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[17] In commenting on this method the Research Department of the American Institute of Accountants stated:

> This method [the average cost method], especially when applied to fungible goods purchased in advance of the consummation of sales contracts, and not subject to deterioration, may be regarded as combining in a high degree the merits of theoretical accuracy and practicability. It is probably the method most commonly used of all costing procedures.

Leading accountants, however, have expressed doubt as to the accuracy of the last quoted sentence. ("Inventories: A Tentative Statement by the Research Department of the American Institute of Accountants," *Journal of Accountancy*, October, 1940, p. 328. The reference is henceforth referred to as *Inventories I.*)

The same general procedure is often applied on a quarterly or monthly basis, rather than annually, in which case the results more nearly approximate those of the Fifo method. Other variants of this general procedure use moving averages computed from perpetual inventory records.

A second method, which stands at the opposite end of the spectrum from the weighted average approach computed annually, differs only slightly from Fifo. Under this method monthly averages are taken of the cost of inventory goods purchased or produced. The ending inventory is then valued by using first the average cost of the inventory units purchased or produced in the last month, next that of the preceding month, the second preceding month, and so on, up to the number of units actually present in the ending inventory. For example, if 1,000 units of a given inventory good, purchased at the rate of 400 a month, are on hand in an ending inventory, the Fifo valuation would be the cost of the last 1,000 units purchased. The monthly average-cost method, as here defined, would show an identical aggregate value for 800 of the 1,000 units. The value of the remaining 200 units under Fifo would be the cost of the last 200 units purchased in the third month before the end of the fiscal year, while, under the monthly average-cost method, the value of these 200 units would be the average cost of all units purchased in that month. The probability of substantial differences in the valuation arising between these two methods is slight. In essence, this version of the average-cost method is simply an adaptation of Fifo which avoids some of the administrative problems that would be encountered in a literal application of the Fifo principle, especially for companies with similar inventories in different locations.

The Treasury regulations do not recognize the average-cost method for general use. They clearly stipulate that Fifo shall be employed for intermingled, normal inventory goods except when Lifo is used. The average-cost method, however, has been formally recognized in the tobacco industry, no method more nearly approaching theoretical accuracy being practicable, but we have seen no other reference to its formal recognition. In a case in the silk industry this method was specifically denied because the taxpayer was unable to demonstrate that an alternative method prescribed by the Treasury was inaccurate.[18]

Nevertheless, despite the contrary indication of the regulations, the empirical evidence is conclusive that the average-cost method is widely used for both book and tax purposes. It is less clear, though, to what extent the average-cost procedures in use constitute close approximations to Fifo and to what extent they deviate significantly from it.

From the viewpoint of Treasury policy the issue is not important. So long as the method employed by any given taxpayer is consistently followed, taxable income ordinarily would be stated equally well by an average-cost as by a Fifo method; at any rate, the lines would have to be drawn very finely to justify the acceptance of one of these methods and the prohibition of the others. For national income estimates, however, the differences are more significant. In eliminating the element of price inflation from inventories an estimate must be made of the average age, for valuation purposes, of the beginning and ending inventories. This estimate, which is needed in order to select the proper price indexes to reduce the inventories to the same price level, cannot be made without knowledge of the valuation procedures employed. The date of the appropriate index may vary by several months depending on whether Fifo or various forms of average cost are used.

Still a different procedure sometimes followed in determining cost under the traditional lower-of-cost-or-market method is to maintain the identity of each lot of materials purchased and to charge sales with the actual costs of the specific goods sold. Under this *specific-invoice* procedure the identity of the ending inventory goods is known and their exact cost determined. In some instances in which purchases are made as needed to cover firm sales orders, the method is both practicable and appropriate, but it is not feasible for the ordinary manufacturing or merchandising inventory. Moreover, when applied to fungible goods, the specific-invoice procedure is subject to abuse by the arbitrary selection of particular units for delivery in order to achieve a desired effect on profits. For this reason the procedure is frowned upon by many public accountants.

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[18] For more details see R. H. Montgomery, *Federal Taxes on Corporations, 1942-1943* (New York, Ronald Press Company, 1943), Vol. I, pp. 920-921.

The Treasury recognizes the specific-invoice method in the following regulation:

> . . . Where the taxpayer maintains book inventories in accordance with a sound accounting system in which the respective inventory accounts are charged with the actual cost of the goods purchased or produced and credited with the value of goods used, transferred, or sold, calculated upon the basis of the actual cost of the goods acquired during the taxable year (including the inventory at the beginning of the year), the net value as shown by such inventory accounts will be deemed to be the cost of the goods on hand.[19]

In general, the specific-invoice method reflects inventory profits in times of rising prices in substantially the same way as does Fifo, since materials are ordinarily used in the approximate order of their acquisition. The method, however, need not have this effect. An officer of a cotton mill, for instance, reports that his company employs the specific-invoice method, always charging into work in process the highest priced inventory goods (cotton bales) on hand. This procedure could closely approximate Lifo in a period of rising prices, but in times of falling prices it would resemble Fifo. In some recent accounting literature the procedure here described has been referred to as "Hifo" or highest-in, first-out.

Mr. Kracke has suggested that a modified form of the specific-invoice method — based, as he puts it, on "economic" rather than "physical" identification — may sometimes be useful. Purchases or purchase commitments made to cover sales or sales commitments would be identified with the sales or sales commitments. This type of identification would be closely similar to effective hedging except for a working fund of materials which would not be hedged.[20]

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[19] Regulations 111, Sec. 29.22 (c)-2.

As a final comment it should be noted that many companies now use the base-stock or Lifo procedures to define cost and, at the same time, continue to employ the "cost or market, whichever is lower," convention in their business accounts. This combination is not permitted for tax purposes, although it may be used in isolated cases. The base-stock and Lifo procedures are not discussed here since they hardly fall within the bounds of the usual application of the lower-of-cost-or-market method.[21]

USE OF MARKET RATHER THAN COST VALUATIONS

The question of when market valuations may be appropriately substituted for cost valuations can be broken down into two subsidiary questions: (a) under what circumstances should market be employed if market is lower than cost, and (b) under what circumstances should (or may) market be employed if market is higher than cost?

The Committee on Accounting Procedure answers the first question with the following statement:

> A departure from the cost basis of pricing the inventory is required when the usefulness of the goods is no longer as great as its cost. Where there is evidence that the utility of goods, in their disposal in the ordinary course of business, will be less than cost, whether due to physical deterioration, obsolescence, change in price levels, or other causes, the difference should be recognized as a loss of the current period. This is generally accomplished by stating such goods at a lower level commonly designated as market.[22]

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[20] For a discussion of the specific-identification method see *Inventories I*, p. 328, and E. A. Kracke, "Inventories: From Fetish to Creed," *Accounting Review*, June, 1941, pp. 180-181.

[21] See the next chapter for a detailed discussion of Lifo requirements.

[22] *Accounting Research Bulletin, No. 29.*

The implication of this statement is that market price should be taken into consideration if a fall in the price of inventory goods renders a loss on inventory goods purchased at higher costs probable because sales prices are sensitive to fluctuations in the cost prices. But if a fall in the price of inventory goods does not imperil the realization at a profit of inventory goods on hand and purchased at higher costs, the statement also implies that the market price of these inventory goods need not be reflected in the inventory valuation. A reduction of inventories to market prices would not be appropriate, for instance, for goods purchased to fulfill firm sales commitments or, more generally, for inventories held by companies whose selling prices customarily remain stable. In these cases the fact that the replacement market of the inventories on hand had fallen would not, in itself, constitute adequate justification for stating them at less than cost.[23] The tax regulations specifically state that "goods on hand or in process of manufacture for delivery upon firm sales contracts (i.e., those not legally subject to cancellation by either party) at fixed prices entered into before the date of the inventory . . . must be inventoried at cost."[24]

One important difference between tax requirements and generally accepted accounting practices with respect to the lower-of-cost-or-market rule needs to be highlighted. The Internal Revenue Code requires that inventories valued at Lifo be carried *at cost rather than at the lower of cost or market.*[25] Unless this requirement were made, taxpayers using Lifo would be able to reduce their taxable income by writing inventories down to market in periods of falling prices, but they would not be required to include in taxable income profits resulting from higher valuations placed on a constant physical inventory in times of rising prices. Without the cost requirement, therefore, taxpayers on Lifo would be in a more favorable position than taxpayers using traditional methods. For book purposes and published accounts this consideration is not relevant. Indeed, for precisely those industries in which Lifo is most suitable — where selling prices fluctuate closely with cost prices — it is especially important from the point of view of generally accepted accounting principles that inventories be reduced to market in times of falling prices. If, however, Lifo is regarded as a means of matching current costs with current sales, a logically consistent case could be made for disregarding entirely the current market values of Lifo inventories. But, since most companies will attempt to choose a time when prices are relatively low to shift to Lifo, the occasions in which market prices will fall below Lifo cost valuations are likely to be infrequent.

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[23] For an elaboration of this general position see George D. Bailey, "Problems of Inventory Pricing," *Journal of Accountancy*, August, 1941, pp. 143-148, and Kracke, op. cit.

[24] Regulations 111, Sec. 29.22 (c)-4.

[25] Internal Revenue Code, Sec. 22 (d) (1).

In contrast to situations in which inventories need not be reduced from cost, the clearest example of situations in which a reduction to less than cost is imperative is found in the treatment of damaged, obsolete, or otherwise unsalable goods. Irrespective of the accounting method employed, these goods should be written down to their market value in a damaged state so that the loss of value may be charged against the period in which it occurred. Tax regulations permit such damaged goods to be written down even by taxpayers employing a straight cost method of inventory valuation.[26] Presumably, therefore, even Lifo taxpayers would be permitted to mark down damaged inventory goods.

One additional question is of sufficient importance to require comment. In applying the lower-of-cost-or-market rule a choice must be made between reducing the inventory as a whole to market, if market is below cost, or reducing *each* item in the inventory to market, if the market for that particular item is below cost. The second alternative will give a lower value than the first, since the first procedure allows an appreciation of some inventory items to be offset against a decline in value of others.

The tax regulations require that the adjustment to the lower of cost or market be made by treating each item separately.[27] The Committee on Accounting Procedure takes the more flexible position that either method of adjustment may be appropriate in particular circumstances. It indicates, however, that the most common practice is to apply the adjustment separately to each item of the inventory.[28]

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[26] Regulations 111, Sec. 29.22 (c)-2.
[27] Regulations 111, Sec. 29.22 (c)-4.

If the theory behind the adjustment is that no costs should be carried forward to succeeding accounting periods unless they are recoverable, the adjustment should be made on an item-by-item basis. On the other hand, if the view is that completed transactions determine profit or loss and the write-down is in effect a prudential reserve of realized profit, then the adjustment need not exceed the excess of aggregate cost over aggregate market. This conclusion would not hold, however, if the inventory were out of balance with the stocks of some materials excessive in relation to others.

To turn to the second main question — the circumstances which justify the use of market values in excess of cost — good accounting practice permits market to be employed if it is above cost only under exceptional circumstances. For example, agricultural products such as sugar and other annual crops may be valued legitimately at market prices in the hands of their producers. This practice involves questions of agricultural accounting of a different order from industrial or manufacturing accounting. The use of current market prices in this case is defended because of the desirability of computing the results of each annual crop.[29]

Monetary metals have been valued at selling values less costs of disposition in some cases. The Committee on Accounting Procedure has approved this policy for gold, silver, and copper inventories. The primary justification for the use of market valuations in these cases is apparently the high probability of realization.[30]

For other commodities the use of market values rests on the difficulty of developing an objective basis for the assignment of costs of production. Packing-house products fall into this category. In the absence of a reliable basis for an objective allocation of costs, market prices have been employed as a better basis for inventory valuation than the uncertain cost

[28] *Accounting Research Bulletin, No. 29.*

[29] "Inventories: A Tentative Statement by the Research Department of the American Institute of Accountants, II," *Journal of Accountancy*, April, 1941, p. 298.

[30] Loc. cit. and *Accounting Research Bulletin, No. 29.*

allocations so far proposed. The very low margin of profit realized by the industry is also regarded as removing the practical objections to valuation at market above cost.[31]

The following question was put to the Committee on Accounting Procedure some years ago: Are you prepared to accept the current general practice of valuing inventories at selling values less selling and administrative costs to be incurred, in the accounts of producers of the following commodities? The answers were:[32]

	Yes	*No*	*Indefinite*
(a) Raw sugar	10	2	3
(b) Packing-house products	10	3	2
(c) Gold	15	0	0
(d) Silver	14	0	1
(e) Copper	9	3	3
(f) Crude oil	9	2	4
(g) Work on contracts	7	2	6

DEFINITION OF MARKET

A strict reading of the Treasury regulations defining *market price* and of the court interpretations of this concept would give a misleading impression of the procedures actually followed in the field. The regulations are precise and specific in their requirements, but their common sense interpretation by most revenue agents often substitutes rough and ready adjustments. The following summary of the Treasury requirements is subject to this caveat.

The regulations define *market* as follows:

> Upon ordinary circumstances and for normal goods in an inventory, "market" means the current bid price prevailing at the date of the inventory for the particular merchandise in the volume in which usually purchased by the taxpayer, and is applicable in the cases —
>
> (a) of goods purchased and on hand, and
> (b) of basic elements of cost (materials, labor, and burden)

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[31] Loc. cit. The Treasury regulations also recognize the allocations of joint costs according to the selling value of joint products (Regulations 111, Sec. 29.22 (c)-7).

[32] W. A. Staub, "Research in Inventories," *Journal of Accountancy*, April, 1942, p. 308.

> in goods in process of manufacture and in finished goods on hand. . . .
>
> Where no open market exists or where quotations are nominal, due to stagnant market conditions, the taxpayer must use such evidence of a fair market price at the date or dates nearest the inventory as may be available. . . . Where the taxpayer in the regular course of business has offered for sale such merchandise at prices lower than the current price as above defined, the inventory may be valued at such prices less direct cost of disposition. . . .[33]

In the interpretation of these regulations the courts have drawn a sharp distinction between "traders" and "manufacturers," allowing traders to use rule (a), above, and manufacturers rule (b). Traders are allowed to value "goods purchased and on hand" at *replacement (by purchase) cost* in arriving at a market valuation. Manufacturers, on the other hand, must determine market on the basis of *reproductive cost* rather than replacement (by purchase) cost. Reproductive cost is determined by applying to raw materials, to the expense of labor, and to the burden attributable to manufacture, the "prices prevailing on the inventory date — that is, what it would cost to purchase raw materials on that date, what the prevailing wage scale was on that date, etc. . . ."[34] It should be noted, however, that in cases where taxpayers have offered merchandise for sale in the regular course of business at prices lower than market, determined under either of the above rules, the inventory may be valued at the offering prices less direct costs of disposition.

The discussion to this point refers only to "normal goods." Special provisions apply in the case of inventory goods which are unsalable at normal prices or unusable in the normal way because of damage, imperfections, shop wear, changes of style, odd or broken lots, or other similar causes, including second-hand goods taken in exchange. These goods are to be valued at bona fide selling prices less direct cost of disposition regardless of whether a cost or a lower-of-cost-or-market method is employed for normal inventory goods. If the damaged or obsolescent goods consist of raw materials or partly finished goods, they are to be valued upon a reasonable basis, taking into consideration the usability and the condition of the goods, but in no case at less than scrap value.[35]

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[33] Regulations 111, Sec. 29.22 (c)-4. See also George O. May, *Financial Accounting* (New York, The Macmillan Company, 1943), pp. 178-179, for an interesting commentary on the origin of the first paragraph of this regulation.

[34] *Bedford Mills, Inc.* v. *U.S.* 75 Ct. Cl. 412, 59 F (2d) 263, 11 AFTR 443, motion overruled 2 F. Supp. 769, certiorari denied 54 S. Ct. 71.

Among accountants a lively controversy still exists as to the appropriate definition of market price. *Accounting Research Bulletin, No. 29,* defines the concept as follows:

> As used in the phrase "lower of cost or market," the term "market" means current replacement cost (by purchase or by reproduction, as the case may be) except that:
>
> (1) Market *should not exceed* the net realizable value (i.e., estimated selling price in the ordinary course of business less reasonably predictable costs of completion and disposal) and
>
> (2) Market *should not be less than* net realizable value reduced by an allowance for an approximately normal profit margin.

Thus, there is no single standard for determining market. Replacement or reproduction costs (which themselves may differ greatly) may be substantially higher or lower than net realizable value. Moreover, net realizable value, often difficult to determine, becomes even more indeterminate if an attempt is made to deduct "an allowance for an approximately normal profit margin."

Minority members of the Committee objected to the above definition on one or both of two grounds: first, because it requires cost in certain cases to be written down to replacement or reproductive cost when net realizable value is higher, and, secondly, because it requires that the prospective "normal profit" be estimated and be used in determining inventory value in certain cases. Mr. George O. May also objects strongly on the second ground. Furthermore, Mr. May suggests the phrase "actual and useful cost" as a substitute for the phrase "lower of cost or market" as a means of escape from the ambiguity of the latter phrase. That is to say, costs would be carried over in the inventory account to be charged against revenues of the succeeding income period only to the extent that they appear to be recoverable.[36]

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[35] Regulations 111, Sec. 29.22 (c)-2.

A NOTE ON HEDGING

Special problems are encountered in industries in which hedging operations are commonly undertaken. While these operations do not always directly affect inventory valuations, their general bearing on inventory methods should be discussed. The procedures followed by cotton and grain dealers and flour millers will be considered first since they differ from certain other industries in which hedging is practiced.

The operating profits of cotton and grain dealers will be properly stated only if sales and sales commitments are charged with the cost of the purchases made to cover them, with these costs adjusted by any gains and losses on appropriate hedging operations. To arrive at a theoretically proper inventory valuation the identity of each inventory lot and the hedging operations against it would have to be preserved; in practice, however, this is not feasible. A trade practice has therefore been developed which approximates a "theoretical cost" valuation by pricing all, say, grain inventories initially at market (whether above or below cost) and then adjusting the market valuation by the offsetting gains and losses on such unfilled orders and open futures contracts as represent true hedges. To the extent that the grain is fully hedged these offsetting adjustments will bring the inventory to an approximate cost valuation.[37] A cost valuation is desired since (as noted above) inventories protected against loss from price fluctuations should be valued at *cost*, not at lower of cost or market.

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[36] George O. May, "Inventory Pricing and Contingent Reserves: Comment on New Accounting Research Bulletins," *Journal of Accountancy*, November, 1947, pp. 362-363. For a vigorous dissent to the practice of writing finished inventories down below net realizable value because of declines in reproductive costs see statement by William Blackie, *National Association of Cost Accountants Year Book*, 1940, pp. 123-126. In connection with this controversy it should be emphasized that the majority formulation involves an estimate of a "normal profit *margin*" *not* a "normal profit." The distinction is important since the former is much easier to determine than the latter.

[37] For detailed descriptions of this method see Joseph Pelej, "Valuation of Flour Mill Inventories," *Journal of Accountancy*, July, 1939, pp. 35-47, and R. C. McKibbin, "Valuing Flour Mill Inventories, *N.A.C.A. Bulletin*, May 1, 1947, pp. 1076-1085. General Mills, to cite a typical example of a company using the method, describes its grain for processing, flour and soybean products as "at market, after appropriate adjustment in respect of open cash trades, unfilled orders, etc."

Pillsbury Mills, Inc., which uses the inventory method just described, explains it with unusual clarity in a note to its financial statements dated May 31, 1948:

> Wheat, other milling grain, flour and millfeed inventories have been stated on the basis of market prices of grain May 31, 1948, including adjustment to market of open contracts for purchases and sales. The company enters into commitments for the purchase and sale of grain and flour as an essential part of its established policy of hedging these commodities to the extent practicable, to minimize profit or loss due to grain price fluctuations. The financial statements reflect the hedged position by taking into account all elements in the hedge (inventories on hand and long and short commitments) at market, so that the market gains and losses substantially compensate or offset one another, subject to the completeness of the hedge and certain other relative minor elements. This procedure has been applied in a manner which does not result in taking unrealized profit into account.[38]

The Treasury accepted this method in 1926 as clearly reflecting income for cotton and grain dealers (and presumably taxpayers in like activities).[39] A later Treasury ruling states with reference to this method:

> . . . the effect . . . [of the method described above is] to exclude from the income computation the profit or loss reflected in inventory due to market fluctuations . . . by adopting the accounting practice of reflecting in taxable income at the close of the accounting period a profit or loss (though such items had not then accrued in the ordinary sense) from the open futures contracts to offset or nullify the loss or profit in inventory due to market fluctuations.[40]

A different procedure is required for cotton textile manufacturers and other manufacturers who typically value their inventories on *a lower-of-cost-or-market basis* rather than at market, but frequently hedge at least part of their inventories.

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[38] Pillsbury Mills, Inc., *Annual Report*, May 31, 1948, p. 11.
[39] S. M. 5693, 1926, Cum. Bull. V-2, p. 20.
[40] G.C.M. 17322, 1936, Cum. Bull. XV-2, pp. 153-154.

These manufacturers typically do not adjust their inventories at all for gains and losses on hedging transactions, but they do take up in income gains and losses on *closed* (but not open) futures operations.

The Treasury has recognized this practice so long as the dealings in futures represent true hedging operations and can therefore be considered a form of legitimate business insurance with gains and losses therefrom included in income. It requires, however, that *speculative* dealings in futures be treated as capital transactions and hence excluded from ordinary income.[41]

The reason for not bringing gains and losses on *open* hedging operations into income arises from the use of the lower-of-cost-or-market method. Inventories on this method are adjusted in only one direction, downwards, on account of market fluctuations, while open hedges cover market fluctuations in both directions. Thus, unless hedges are earmarked as protecting specific lots of inventory goods (which would be very difficult in practice), it would be impossible to determine the extent to which unrealized gains on open hedges should be reflected in income at the close of the accounting period to offset inventory writedowns from cost to market. Clearly, unrealized losses on open hedges resulting from price increases should not be taken up in income since inventories on the lower-of-cost-or-market method are not written up above cost to reflect these price increases.

In theory, it is improper for losses to be taken on inventories protected by hedges, but such losses are taken to a limited extent when inventories protected by open futures contracts are written down from cost to market. The Treasury ruling approving this procedure recognizes this theoretical imperfection in the method but excuses it largely on the grounds that in practice the inaccuracies will "wash out" quickly. It also points out that most hedging transactions are closed out within the year and that about the same number of open hedges are usually carried over from year to year.[42]

At the risk of anticipating some of the material of the next chapter a word should be said as to the relationship of hedging to Lifo. If an inventory is completely hedged at all times, its owner is protected against all gains or losses arising from price changes, except for such variations as may occur in the relative price movements in the spot and futures markets. Lifo, in contrast, provides much less complete insulation from the effect of price movements.

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[41] Ibid.

[42] Ibid.

Under ideal circumstances Lifo may have approximately the same effect *on income* as will complete hedging. This effect will be achieved if sales are regularly and consistently matched by simultaneous purchases of equal quantities of new inventories, and if sales prices are set on the basis of replacement costs. To facilitate the elimination of price fluctuations from income by this practice, the Treasury has ruled:

> If the elective inventory method is used by a taxpayer who regularly and consistently, in a manner similar to hedging on a futures market, matches purchases with sales, then firm purchases and sales contracts (i.e. those not legally subject to cancellation by either party) entered into at fixed prices on or before the date of the inventory may be included in purchases or sales, as the case may be, for the purpose of determining the cost of goods sold and the resulting profit or loss, provided that this practice is regularly and consistently adhered to by the taxpayer and that, in the opinion of the Commissioner, income is clearly reflected thereby.[43]

Even when this practice is rigidly followed by a Lifo taxpayer, however, the total results are not precisely the same as those achieved by true hedging with a perfect futures market. Though the effect on income may be approximately the same, the Lifo taxpayer will, in a period of rising prices, own an inventory which has appreciated in market value during the year. While the appreciation is not taken up in income or recognized in the inventory valuation, it has nevertheless undeniably occurred and has not been balanced by any offsetting losses. A taxpayer with a completely hedged inventory, on the other hand, would have the increase in the value of his inventory goods balanced by offsetting losses on his hedging operations.

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[43] Regulations 111, Sec. 29.22 (d)-1. This statement reads as though sales contracts could actually be taken up into sales. This, however, would not be acceptable accounting treatment. What is presumably meant is that goods purchased against such sales contracts may be excluded from the computation of cost of goods sold so that income will not be affected by purchases (or purchase commitments) made late in the year to cover sales contracts.

To the extent that a Lifo taxpayer deviates from a rigid policy of matching sales and sales commitments with purchases and purchase commitments, even income will not be the same under Lifo as under a completely hedged inventory. But under these circumstances the comparison is hardly valid; when sales and purchases are not matched, it would be more appropriate to compare Lifo with a partially hedged inventory than with a completely hedged inventory.

"SUMMARY"

Since this chapter is almost entirely descriptive in character, and no specific points are of outstanding importance, a summary statement would serve little purpose. The major point of general significance for this book is that tax regulations have had very little bearing on the broad outlines of traditional inventory methods. With reference to these methods tax accounting has largely taken over business accounting practices.

CHAPTER VIII

Technical Discussion of Lifo Inventory Method

This chapter continues the detailed discussion of specific inventory procedures by taking up the Lifo method. In contrast to the lower-of-cost-or-market method, procedures used by most companies in applying Lifo for both tax and business purposes have been dominated by the tax requirements for its use. The bulk of this chapter, therefore, analyzes these requirements, covering the use of Lifo by all taxpayers except those employing the retail method of inventory valuation. This method and the problems arising from its Lifo adaptation are treated separately in Chapter X.

The present chapter first summarizes the general Lifo requirements as stated in the Code and the Treasury regulations. Most of these requirements have been mentioned already in passing, especially in Chapter IV, but they are presented here systematically and in detail. The summary of the regulations is supplemented by information gathered in our field interviews on actual taxpayer practice and the advantages of various alternative procedures as seen by business management.

The second section of this chapter discusses a problem of great importance to some Lifo taxpayers, namely, the methods permitted for pooling or grouping goods into categories in the application of Lifo. Decisions on this point have greatly influenced the potential industrial scope of the method. The bare outlines of this problem have been summarized in Chapter IV, but the matter is treated in detail in this chapter. While the regulations deal in general terms with the matter of inventory categories, recourse to extensive field interviews has been necessary to obtain a clear view of the procedures actually employed in tax and business practice.

STATUTORY PROVISIONS AND TREASURY REGULATIONS GOVERNING LIFO

Before 1938 Lifo was barred for tax use, as were related methods. In 1938, however, in response to longstanding taxpayer pressure, especially from representatives of the nonferrous metal and tanning industries, the use of the method in a narrow range of industries was authorized by Congress. In the following year the Revenue Act of 1939 extended this authorization to all taxpayers complying with the Treasury regulations governing its use. The present statutory requirements and Treasury regulations with respect to Lifo thus are based mainly on the 1939 act, although several significant details have been altered since then.

Taxpayers Eligible to Use Method

No restrictions are placed on the use of Lifo (or, as the Code designates it, the *elective* method) except that taxpayers adopting it must conform to the regulations issued by the Commissioner.[1] The Treasury regulations specifically state that the use of Lifo is not dependent on the character of the business in which the taxpayer is engaged or upon the identity or want of identity through commingling of the inventory goods on hand.

Although Lifo was made legally available to all taxpayers the general consensus at the time of its authorization was that the method was of limited applicability and would be elected only by taxpayers in a narrow range of industries. As one prominent accountant stated in 1940:

> . . . The comparatively limited application of last-in, first-out and related methods has been recognized as long as the method has been discussed or advocated. There are certain general characteristics in an industry or trade which indicate that last-in, first-out is a suitable method. These are principally the

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[1] The *elective method* as authorized by the tax law deviates in some details from a strict Lifo method. Nevertheless, to be consistent with business usage and our usage in other chapters, the term, Lifo, is used rather than the term, elective method, except when distinctions are being drawn between a strict Lifo and specific details of the elective method. Quotations from the Code and Treasury regulations, of course, use the term, elective method.

> use of a uniform or substantially uniform raw material or raw materials, the preponderance in value in the finished product of the raw material and a relatively long processing period or relatively slow turnover. Examples of such industries come to mind readily — those having to do with the production and fabrication of nonferrous metals, the tanning industry, several branches of the textile industry, and branches of the chemical industry including the refining and processing of petroleum. The list could probably be extended, but the point here is that . . . they are comparatively limited in number.[2] . . .

The widespread extension of Lifo since 1940 to industries not meeting these criteria is indicative of the power of tax considerations to modify business practice, not to mention generally accepted accounting practice.

Inventory Goods to Which Lifo May Be Applied

No restrictions are placed on the inventory goods to which Lifo may be applied. The method may be elected for all or part of a taxpayer's inventory, but the goods placed on Lifo must be specified in the taxpayer's application for its use. This application must be filed with the tax return covering the year for which Lifo is elected. The method may be extended to new inventory goods by a supplementary application in a later year, but goods once placed on Lifo must be continued on the method permanently — subject to the Commissioner's permission to shift to another method or his requirement that the taxpayer abandon Lifo because of a violation of the Treasury regulations.

Substantial leeway is permitted taxpayers in choosing the portions of their inventory to be valued according to the Lifo method. Special components of inventories such as specific materials or materials as a class as distinguished from labor and manufacturing burden may be placed on Lifo, or the election may cover the taxpayer's entire inventory.

The taxpayer's original statement of election must be accompanied by an analysis of his entire inventory as of the beginning and end of the taxable year for which Lifo is first used and as of the beginning of the preceding taxable year. This analysis must show in detail the manner in which inventory costs are computed and in which the products are segregated into groups for the application of Lifo. The Commissioner claims the right to require that Lifo be used with respect to goods other than those specified in the taxpayer's statement of election if this extension of the method is necessary to a clear reflection of income.

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[2] M. E. Peloubet, "Last-in First-out Once More," *Journal of Accountancy*, June, 1940, p. 447.

Basis of Inventory Valuation of Goods on Lifo

Inventory goods on Lifo must be valued on a cost basis regardless of current market values. This rule is designed to protect the Treasury against undue revenue loss and to avoid an unfair discrimination in favor of taxpayers on Lifo and against those using traditional methods. If the lower-of-cost-or-market convention could be used in conjunction with Lifo, taxpayers on Lifo would be protected from the taxation of inventory profits in times of rising prices, but nevertheless would be allowed to reduce their taxable income when market prices fell below Lifo inventory values. Should this option be granted to Lifo taxpayers, a wholesale shift to the method could be anticipated; many taxpayers have refrained from electing Lifo mainly because of their fear that the market prices of inventory goods would fall below their Lifo costs.

The Code and regulations prescribe the manner in which cost must be computed. Goods comprising the beginning inventory of the first year on Lifo must be valued at average cost. The average cost of units in each inventory class is obtained by dividing the aggregate cost of this inventory class, computed according to the inventory method previously employed by the taxpayer, by the number of units on hand. In effect, each unit is considered to have been acquired at the same time.

Goods of a specified type on hand at the close of a taxable year are treated as being: first, those included in the opening inventory of the taxable year in the order of acquisition, and secondly, those acquired in the taxable year. The taxpayer is given permission to value any physical increment of goods of a specified type at costs determined as follows:

(a) By reference to the actual cost of the goods most recently purchased or produced;

(b) By reference to the actual cost of the goods purchased or produced during the taxable year in the order of acquisition;

(c) By application of an average unit cost equal to the aggregate cost of all of the goods purchased or produced throughout the taxable year divided by the total number of units so purchased or produced, the goods reflected in such inventory increase being considered for the purposes of Section 22(d) as having been acquired all at the same time; or

(d) Pursuant to any other proper method which, in the opinion of the Commissioner, clearly reflects income.[3]

The method elected by the taxpayer must be consistently adhered to in all subsequent taxable years.

Option (b) corresponds to the strict Lifo procedure. Option (a), on the other hand, reverses this procedure by providing that inventory increments must be valued at the cost of the most recent purchases rather than in the order of acquisition of such inventory goods during the year. If this inventory increment is subsequently liquidated, however, option (a) reverts to the strict Lifo procedure, namely, that the goods remaining in the inventory be considered the earliest goods acquired. Thus, option (a) is inconsistent in that the inventory increment is assumed to be built up on a Fifo basis but to be liquidated on a Lifo basis. The explanation presumably lies in the specific requirement of the law that the inventory goods on hand at the close of any taxable year be treated as being, first, those included in the opening inventory (*in the order of acquisition*) and, secondly, those acquired during the year.[4]

While our field work on the accounting for inventory increments has been too spotty to be conclusive, most Lifo companies appear to value inventory increments according to option (b) — the strict Lifo procedure. Several factors have encouraged this tendency. In a steadily rising market the earliest goods purchased during the year usually will be acquired at lower prices than later purchases. Inventory increments built up on rising wartime markets, therefore, generally were found to be stated at lower values under option (b) than under option (a). Some managements experimented with all three options before filing their first Lifo return and formally elected the option which gave the lowest inventory valuation, and hence the smallest taxable income for the year.

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[3] Regulations III, Sec. 29.22(d)-2. This regulation was later expanded by T. D. 5504, 1946-1 Cum. Bull. 52, but its substance was not materially changed. The shorter version is therefore quoted.

[4] Internal Revenue Code Sec. 22(d) (1) (B).

Another effect of the strict Lifo procedure is that it leaves management more flexibility in determining the amount of profits and taxable income reported in a given year. If prices have risen steadily during a year, for instance, profits can be reduced by building up inventory increments as of the year end. Such year-end purchases will be charged into cost of goods sold at their actual costs, but the inventory increments resulting from the purchases will be carried in the ending inventory at the costs of the first goods purchased during the year. Profits will be reduced by the excess of the costs of the year-end purchases over the costs of corresponding goods purchased at the beginning of each year. With this in mind, some managements deliberately built up inventories as of the end of 1945 to reduce their taxable income in the last year of excess profits taxation.

In years of falling prices the same device could be employed to increase the income of a given year. This procedure, however, would less frequently be advantageous for tax purposes; for business purposes its potentialities would be limited by the usual practice of showing Lifo inventories in published reports at the lower of cost or market rather than on a straight cost basis.

While the ability to manipulate income in this way has obvious tax advantages to management, the social justification for the procedure is more dubious. It may lead to unjustified reductions in taxable income and to manipulations of profits data reported to the public. Some accountants unsympathetic to Lifo cite the possibility of "juggling" income in this manner as an important argument against its acceptability as an accounting method. The general significance of the point, however, could easily be overemphasized; the business limitations on purchasing decisions made mainly to manipulate taxable income or reported profits ordinarily will be sufficient to hold the practice within reasonable bounds. But instances have undoubtedly occurred in which managements have deliberately juggled their inventory holdings for the purpose of manipulating their net income.

For the most part, decisions to use the average-cost or most-recent-purchase options have been based on their administrative convenience to some companies. In a few cases, however, these options have been elected because they happened to be advantageous, taxwise, in the first Lifo year. Several managements have also preferred one or the other of these options because they believed income would be more precisely reported under it, if only because of the minimization of the opportunities for arbitrarily manipulating income. Some companies have used the average-cost option to eliminate the effect of seasonal or accidental fluctuations in costs on the pricing of inventory increments; that is, the valuation of increments on the basis of most recent or earliest costs incurred in the year might not correspond with average annual production costs.

The cost basis is required in one other instance. Goods placed on Lifo must be valued at cost in the taxpayer's ending inventory for the year preceding the first year in which the method is employed. This provision is necessary to insure that the beginning inventory on Lifo will have the same aggregate value as the ending inventory on the method previously employed.

Additional Regulations Governing Adoption and Continued Use of Lifo

In addition to the provisions already cited certain other important regulations have been issued governing the tax use of Lifo. Under the 1939 act a taxpayer was not allowed to adopt or to use Lifo for any taxable year in which he had employed a different inventory method in ascertaining his income for credit purposes or for reports to shareholders, partners, other proprietors, or beneficiaries. Two exceptions have been made to this requirement. First, the Treasury ruled that market prices could be substituted for cost in business reports. This exception was necessary so that taxpayers would not be compelled to publish business reports with inventories stated at unreasonably high values in times of falling prices. The exception, of course, does not permit the substitution of market prices for cost valuations in computing taxable income. Secondly, taxpayers have been authorized to issue interim reports on a non-Lifo basis; this privilege was extended in 1942, retroactive to years beginning in 1939, to permit taxpayers to adopt Lifo even though sometime during the year inventories had been valued on another method in interim reports.

DEFINITION OF INVENTORY CATEGORIES: POOLING

The general outlines of the Treasury administrative policy on the important question of the inventory classification to be used in applying the Lifo procedure have already been summarized in Chapter IV (pp. 83-90). As background for the following detailed discussion of the problem, it is perhaps wise to repeat the summary statement there presented:

> . . . during the last ten years the Treasury administration of Lifo has run the gamut from a very restrictive policy to a very liberal policy. The official policy of the Bureau in Washington has been steadily liberalized; the main milestones being T. D. 5407, issued in 1944, and the Treasury acquiescence in the Hutzler decision in late 1947. The regional administration of Lifo although uneven has for the most part been more liberal than the central administration. Without objection from field agents many taxpayers used broad commodity groupings and some used, in substance, dollar value or index number approaches before official regulations were issued authorizing these applications. The policies of the Chicago office of the Bureau have paralleled more nearly the thinking of the Washington office; in the early years they were probably even more restrictive.

The Internal Revenue Code leaves the entire matter of inventory groupings to administrative regulation. The initial Treasury regulations, in turn, were couched in very general language, providing only that inventories should be segregated "into natural groups on the basis of either (1) similarity in factory processes through which they pass, or (2) similarity of raw materials used, or (3) similarity in style, shape, or use of finished products."[5]

Taxpayers electing Lifo were left to their own initiative in determining how their inventories were to be grouped for Lifo purposes. Consequently, a wide variety of procedures was employed both within a given industry and between industries. While the tax returns of some Lifo taxpayers were accepted as filed by local revenue agents, they were usually held open until more specific policies were formulated by the Washington office of the Bureau. The closing of most Lifo returns, therefore, had to await these decisions.

No additional regulations were published by the Bureau until October, 1944. This delay in crystallizing Bureau policies had several causes. The tremendous burden of administering the wartime tax program, especially the excess profits tax, naturally placed the Bureau under extreme pressure and delayed action on specialized problems affecting relatively small numbers of taxpayers. Moreover, within the Bureau some officials felt strongly that Lifo represented a means of tax avoidance rather than a proper accounting method clearly reflecting income. These men favored a requirement that very narrow categories of goods be used in the administration of Lifo — a requirement which would have restricted greatly the scope and usefulness of the method to the taxpayer. The process of resolving the differences between the desires of the taxpayer and the more rigorous preferences of these Bureau officials was time-consuming.

During this period of policy formulation, taxpayers interested in Lifo were fearful of rulings which would require either (1) that identical basic materials (say copper, hides, or cotton) in different stages of processing be classified into separate groups, or (2) that separate groups would be required for the same basic commodities because of minor differences in grade, style, or color. Either of these requirements would have largely emasculated the Lifo method for some taxpayers by showing inventory liquidations — and hence realizations of inventory profits and losses — solely because of minor shifts in the type of goods contained in an inventory. As cited in Chapter IV, a number of taxpayers refrained from electing Lifo or delayed their elections until the pooling issue was clarified because they realized the extreme difficulties that would arise with very narrow inventory groups.

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[5] Regulations 103, Sec. 19.22(d)-3.

As a means of breaking the impasse resulting from the divergent viewpoints of taxpayers and the advocates of a strict Treasury policy, a series of conferences was held at the Bureau in early 1944 with representatives of several leading Lifo industries, especially those engaged in tanning, copper and brass fabricating, meat packing, and textile manufacturing. After these conferences Treasury Decision 5407 was issued in October, 1944, resolving the dilemma to the satisfaction of most taxpayers.

This decision explicitly authorized manufacturers and processors to combine in a single category raw materials and the raw material content of goods in process and finished goods, thereby accepting the taxpayers' views on one of the major points at issue. The decision also authorized a limited degree of combination of similar, but not identical, raw materials into single groups, citing general illustrations for two industries. But to qualify for the treatment outlined in T. D. 5407 the Bureau interpretation is that taxpayers are required to limit their election of Lifo to the material content of their inventories. This limitation, however, was not severely restrictive for most taxpayers in the industries which participated in the conferences leading to T. D. 5407; in these industries raw materials typically represented a major fraction of total costs and were also the component most sensitive to price fluctuations.

In view of the importance of T. D. 5407, its main provisions are quoted:

> A manufacturer or processor who has adopted the elective inventory method as to a class of goods may elect to have such method apply to *the raw materials only* (including those included in goods in process and in finished goods) expressed in terms of appropriate units. If such method is adopted, the adjustments are confined to costs of the raw material in the inventory and the cost of the raw material in goods in process and in finished

goods produced by such manufacturer or processor and reflected in the inventory.

. . . . .

When used herein raw material in the opening inventory must be compared with similar raw material in the closing inventory. There may be several types of raw materials, depending upon the character, quality, or price, and each type of raw material in the opening inventory must be compared with a similar type in the closing inventory.

In the cotton textile industry there may be different raw materials depending upon marked differences in length of staple, in color or grade of the cotton. But where different staple lengths or grades of cotton are being used at different times in the same mill to produce the same class of goods, such differences would not necessarily require the classification into different raw materials.

As to the pork packing industry, a live hog is considered as being composed of various raw materials, different cuts of a hog varying markedly in price and use. Generally a hog is processed into approximately 10 primal cuts and several miscellaneous articles. However, due to similarity in price and use, these may be grouped into fewer classifications, each group being classed as one raw material.

When the finished product contains two or more different raw materials, as in the case of cotton and rayon mixtures, each raw material is treated separately and adjustments made accordingly.

Upon written notice addressed to the Commissioner by the taxpayer, a taxpayer who has heretofore adopted the elective inventory method in respect to any goods may adopt the method herein authorized and limit the election to the raw material, including raw materials entering into goods in process and in finished goods. If this method is adopted as to any specific goods, it must be used exclusively for such goods for any previous year (not closed by agreement) to which the previous election applies and all subsequent years, unless permission to change is granted by the Commissioner.

This election may also be limited to that phase in the manufacturing process where a product is produced that is recognized generally as a salable product, as, for example, in the textile

> industry where one phase of the process is the production of yarn. Since yarn is generally recognized as a salable product, the election may be limited to that portion of the process when yarn is produced. In the case of copper and brass processors, the election may be limited to the production of bars, plates, sheets, etc., although these may be further processed into other products.
>
> This election may also apply to any one raw material, when two or more raw materials enter into the composition of the finished product, for example, in the case of cotton and rayon yarn the taxpayer may elect to inventory the cotton only. However, a taxpayer who has previously made an election to use the elective inventory method may not now elect to exclude any raw materials that were covered by such previous election.[6]

This decision settled the question of combining goods in various stages of processing into single categories, but it left equally important issues unresolved. For instance, the extent to which different qualities or kinds of similar goods could be treated as a single group was indicated only in general terms. No technique was prescribed for determining changes in the quantities of dissimilar goods included in the same inventory category — as, for instance, different grades or cuts of pork. Nothing was said about the procedures to be applied by taxpayers who did not limit their election of Lifo to the material content of inventories.

No further Treasury decisions have been issued on the subject of inventory groupings, and, so far as we have been able to determine, the field offices of the Bureau have received no additional formal directives on the problem. While more or less standardized procedures have been worked out by conferences between industry representatives and the Treasury for pork products — and perhaps for a few other commodities — agreements on inventory groupings in general have been separately negotiated on a highly decentralized basis by individual taxpayers and individual agents of the Bureau. Consequently, wide variations in practice have developed.

These variations can be best indicated by citing typical illustrations of practices used in different industries. In general, these illustrations fall into three classes: inventory groupings under T. D. 5407; inventory groupings when all cost components are placed on Lifo; and so-called dollar-value or price-index methods of inventory groupings.

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[6] T. D. 5407, 1944, Cum. Bull. 83.

Inventory Groupings under T. D. 5407

The only unique problem under T. D. 5407 is the necessity of converting the raw material content of goods in process and finished goods to equivalent units of raw material. This conversion ordinarily can be made with relative ease in the industries (e.g., textile manufacturers, meat packers, copper and brass fabricators, and tanners) in which the method prescribed by T. D. 5407 is frequently used.

In the textile industry, for instance, the material content of cotton in process and in finished goods is typically restated in terms of equivalent pounds of raw cotton by conversion percentages which allow for wastage and changes in moisture content. In the meat packing industry the common procedure is to reduce pork inventories, the meat most generally on Lifo, to their "green weight" equivalent. This adjustment is convenient because the major portion of pork inventories is typically in the freezer, fresh pork, and curing departments and is expressed in terms of its green weight. Processed meat, e.g., boned meat, is converted back to the green meat stage by "gain and loss percentages" computed from the individual packer's experience. Similarly, live hogs must be converted to equivalent pounds of green meat in various inventory categories in order to state the entire raw material of the packer — subdivided into appropriate categories — in equivalent pounds of green meat.

The second major problem under T. D. 5407 is that of deciding what inventory groupings may be used for goods in the same stage of processing. T. D. 5407 does not lay down detailed procedures, but it does recognize the general principle of inventory groups of broadly similar goods. In the absence of detailed rulings, the practice between and within industries varies greatly — both as to the degree to which dissimilar items are combined in a single group and the mechanics of the grouping.

As already explained, this variation in practice is in part attributable to the decentralized administration of Lifo. A great deal also depends on the initial procedures adopted by the taxpayer. Most revenue agents will accept the taxpayer's method except where the groupings are obviously unreasonable. On the other hand, most agents view much more critically taxpayer requests to revise groupings once established, especially if the requested revision will result in immediate tax savings. Cases involving claims for refunds on account of involuntary inventory liquidations typically are examined with more care than those representing routine applications of Lifo. As a side light, some taxpayers deliberately refrained from electing to have the involuntary liquidation provision apply to their inventories because they did not want to risk the loss of favorable inventory groupings which they had established.

Most taxpayers using the method authorized by T. D. 5407 group their inventories into a small number of categories. Many manufacturers of cotton goods, for instance, combine their entire cotton inventories into a single Lifo pool. Separate classifications are not ordinarily required when different grades or staple lengths of cotton are used in making a substantially identical finished product, e.g., broadcloth or denims. In a specialized cotton mill this procedure is reasonable since variations in the cotton used must be small, once the machinery is set for the manufacture of particular products.

At the other extreme, if essentially different raw materials are used, separate classifications ordinarily are required. In principle, under T. D. 5407 separate classifications should be required when markedly different grades and staple lengths of cotton are used for the manufacture of different finished products. But (we have been told by revenue agents) a company with such heterogeneous inventories may still be allowed to combine its inventories into one pool provided that its return happens to be reviewed by a lenient (or uninformed) agent and no important revenue issue appears to be at stake when the method is adopted.

Pork products are the only commodity for which we have found a standard pattern apparently applied throughout the industry. By agreement with the Treasury, most or all meat packers on Lifo classify their pork inventories (including live hogs, if these are on Lifo) into four groups as follows: group 1 — hams, loins, bellies, butts, picnics, and shoulders; group 2 — spare ribs and trimmings; group 3 — fat backs, plates, lard, jowls, and squares; and group 4 — tails, hearts, livers, snouts, skins, bones, feet, hocks, miscellaneous, and by-products. No distinction is made for different qualities of these various cuts. In practice, this grouping gives the packers most of the advantages of a single group, since the cuts in the first group account for approximately 80% of the live value of a hog. Roughly comparable groupings have been used for other meat products on Lifo.

Among the nonferrous metals fabricators which we have interviewed, practices vary from the use of a single inventory group for each basic metal (copper, lead, and zinc) to the use of a moderately larger number of groups. Likewise, tanners manufacturing specialized leather products (say, sole leather) sometimes use a single inventory group, while others that process the hides of various animals to produce a greater variety of leather divide their inventories into several groups.

In general summary, it would appear that the Bureau has been liberal in its interpretation of T. D. 5407. Broad inventory groups, combining products significantly different in quality and character, are the rule rather than the exception.

The very fact that broad inventory groups are frequently used complicates the problem of translating the various items in a group into a common denominator. How, for instance, should cotton of different staple lengths and grades be reduced to a common unit?

The most common procedure is to disregard completely differences in quality or price and to state all items in the group in terms of a common physical unit, say, pounds of cotton. To illustrate by a hypothetical example, suppose that in the initial Lifo inventory three grades of cotton are combined in a single pool, as follows:

Grade	*Bale Pounds*	*Cost per Pound*	*Total Cost*
X	30,000	$0.13	$3,900
Y	10,000	0.12	1,200
Z	5,000	0.11	550
Total	45,000		$5,650

The weighted average cost of each bale pound of cotton in the group, $5,650 divided by 45,000 pounds, or $0.12555, would then be the Lifo valuation for the group (up to the base quantity of 45,000 pounds) regardless of changes in the relative distribution of the three grades of cotton in future inventories. Thus, the Lifo base valuation would not be reduced even though the most expensive grade, X, should be largely liquidated and the cheapest grade, Z, be substituted for it.

The potential distortion in Lifo valuations introduced by this procedure will not be great if the prices of all items in a group are closely similar or if technological considerations or other reasons require the maintenance of a relatively stable "mix" of the items in the group. But if the price range within the group is wide and the variation in relative quantities substantial, serious inaccuracies could be introduced by relying on a simple weighted average approach.

A few companies have used somewhat more refined procedures which attempt to allow for the effect of fluctuations in the relative proportions of various items within the group. One such procedure is to select a "key commodity" within each group and to state all other items in the group in terms of "equivalent pounds" of this commodity. Typically, the ratio of prices of the various items in the group to the key commodity in the initial Lifo inventory is used to make this adjustment. In the preceding illustration this approach could be set up as follows, with Grade Y designated as the key commodity.

Grade	*Bale Pounds*	*Cost per Pound*	*Ratio of Cost of Individual Commodity to Grade Y*	*Equivalent Pounds of Grade Y*
X	30,000	$0.13	1.08333	32,500
Y	10,000	0.12	1.00000	10,000
Z	5,000	0.11	0.91667	4,583
Total	45,000			47,083

The initial Lifo inventory would then be 47,083 equivalent pounds of Grade Y, valued at 12 cents a pound, but the total valuation for the inventory would remain unchanged at $5,650 (the product of 47,083 and 12 cents). If a subsequent inventory should contain 45,000 pounds of bale cotton, but a much greater proportion of the cheaper Grade Z cotton, this procedure would show a liquidation of part of the base inventory of 47,083 equivalent pounds of Grade Y cotton, and hence a lower valuation on such an inventory. In contrast, no liquidation would be shown under the more commonly used simple weighted average approach — in which a pound is a pound regardless of quality or price.

In essence, the "equivalent pounds" approach eliminates possible distortions resulting from shifts in the proportion of various items in an inventory group, but it does not correct for changes in the price relationship among various items in the group between the base inventory date and any subsequent inventory date.

As an interesting side light it should be noted that T. D. 5407 provided some managements with a welcome opportunity to revise their inventory groupings. One management with nearly 500 inventory groups had had great difficulty maintaining its base inventories intact with such narrow groups. Under the revised method adopted when T. D. 5407 was promulgated, the inventory was classified into less than 20 groups. The management was willing to agree to the stipulation that labor and overhead costs be excluded from Lifo since it foresaw technological changes which would significantly reduce its labor and overhead costs.

Inventory Groupings with All Cost Components on Lifo

In industries in which material costs are a relatively small percentage of total costs, Lifo is ordinarily applied to the labor and overhead components of cost as well as to material costs. This practice appears to be general among iron and steel producers and petroleum companies; paper and chemical companies also seem to apply Lifo to all cost components, although our information on these industries is less complete.

The pooling problem for companies with all cost components on Lifo is not essentially different from that for companies under T. D. 5407. In general, the simple weighted average approach is commonly used for the former class of companies as well as for the latter. All items within a given pool are typically reduced to a common physical unit — pounds, tons, or barrels — without regard for differences in quality or price.

The number of pools, however, is usually much larger for companies with all cost components on Lifo than for those filing under T. D. 5407. The explanation is that the pooling is two dimensional, by types of materials and by stages of processing. In an integrated iron and steel company, for instance, there would ordinarily be several (perhaps many) groups at the raw material stage (various classes of iron ore, manganese ore, coal, and fuel oil); other groups at various stages in process (pig iron, ingots, structural shapes); and still others which are clearly finished products (wire, wheels and axles, bolts, nuts, etc.). The same raw materials are transferred from one group to another as they pass through various stages of processing.

For large iron and steel, chemical, and petroleum companies, 30 to 50 groups appear to represent about as broad a classification as is commonly used. Several companies have broken down their inventories into much narrower categories, having literally several thousand distinct inventory groups. Within an individual industry more or less comparable companies sometimes differ in the ratio of, say, 50 to 1 in the number of inventory groups.

Different considerations have motivated managements using very narrow categories. In some instances narrow categories were believed to be mandatory under the Treasury regulations. Other managements apparently gave little detailed thought to the matter; problems such as the difficulty of maintaining Lifo base inventories with narrow categories simply were not anticipated. Finally, still other managements believe that narrow groupings are useful for internal operating controls; some of these companies do not have serious difficulties with inventory liquidations because of the stability of their operations.

Although production processes have an important bearing on the number of inventory pools that can be conveniently used, management ordinarily has considerable leeway in its decisions. One company, for instance, treats similar inventories held in different plants as separate Lifo categories; it presumably would be possible to pool these inventories with relatively little difficulty. Likewise, the extent to which various items at the same locality will be grouped together is largely a matter of discretionary judgment.

Several companies which initially applied Lifo with very narrow groups have subsequently reclassified their inventories into broader groups, or desire to do so. In a few cases such reclassifications have been approved by revenue agents (or have been passed by unnoticed); in others the issue is still unsettled. While the Bureau is understandably reluctant to permit revisions in established practices, the Treasury attitude toward Lifo has changed so radically in the past decade that it would seem reasonable for the Bureau to allow taxpayers who initially applied the method on a narrow basis to broaden their application.

Dollar-Value Inventory Groupings

A substitution of dollar adjustments for the physical identification of commodities in the application of Lifo is generally known to have taken place in retail trade, where an outright price index approach has been widely adopted. But it is much less widely realized that closely similar techniques have been employed by a few manufacturing companies and also by an occasional merchandising company not on the retail method.

This adaptation of Lifo — commonly referred to as the dollar-value method — has been explained as follows by H. T. McAnly, partner in Ernst & Ernst, who actively urged its adoption as early as 1941:

> . . . An example of the simplicity of the application of the last-in, first-out principle through the use of the basic dollar value (as the common unit or denominator) as applied to a complex manufacturing business is presented in the following:

> Each item of finished product is made up of material plus operation time, which is valued to cover labor and expense cost. Thus if we value a physical inventory of related products at the close of a fiscal period by extending each of the items at its cost (material, labor and burden) at the beginning of the year (or, if the items were non-existent at the beginning of the year, at costs constructed at the beginning of the year prices for material, labor and burden) we determine the total ending inventory cost valuation at the beginning of the year prices. If this same inventory at the end of the fiscal period is valued at the current cost of material, labor and burden (which information must be available for use in conducting operations), we determine the total inventory on the basis of current cost. Let us assume that at the beginning of a fiscal year we have an inventory cost value in the aggregate of $4,000,000. Let us assume that at the end of a fiscal period we value the ending inventory at the same material prices, labor and burden rates which existed at the beginning of the year and we arrive at $4,200,000. Let us now assume that this end of the year inventory valued at the current prices (cost) totals $5,250,000. The $5,250,000 end of the year value as compared with the beginning of the year value of the ending inventory of $4,200,000 represents an increase in cost of 25%. In place of using the current cost value of $5,250,000, the application of the last-in, first-out principle should permit the use of $4,000,000 of the $4,200,000, ending inventory as $4,000,000, and only the $200,000 increase would be valued at the 25% increase in cost, thus valuing the ending inventory at a total of $4,250,000 rather than $5,250,000. Only the increase over the amount on hand at the beginning of the year has been increased in cost and the inventory to the extent that it existed in aggregate amount at the beginning of the year has not been changed in value.[7]

We have interviewed one management which applies the dollar-value method substantially as here outlined to a complex manufacturing inventory and has found it highly satisfactory. In effect, the entire inventory of this company has been classified into three inventory pools — *materials, labor, and overhead* — with no further classification whatsoever by product or material groups. This adaptation of Lifo goes beyond even the department store procedure, since department stores typically apply the Lifo principle separately to each department.

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[7] H. T. McAnly, "A Practical Method of Keeping Inflation Out of Inventory Valuation," *Illinois Manufacturers' Costs Association Monthly Bulletin*, October, 1941, pp. 3-4.

The only objection, not of major importance, which its management has to the method is the additional clerical cost of pricing the same inventory twice — at current-year prices and at base-period prices. The chief advantage of the method is that it makes the use of Lifo feasible in many situations in which more orthodox applications would be quite impracticable. Also, the dollar-value procedure has the great advantage of protecting its users from liquidations of Lifo inventories to a much greater extent than either of the previously described methods. For instance, a cotton manufacturer employing the dollar-value procedure might be allowed to substitute nylon for cotton inventories without incurring an inventory liquidation.

While we have not interviewed other nonretail companies using the dollar-value procedure, several other instances of its use in various sections of the country have been cited to us by public accountants and revenue agents. Some of these cases had not been questioned by the Bureau, and returns were closed for some years, but others had been temporarily held up pending final settlement of the Hutzler case (see Chapter X). The expectation of the accountants interviewed was that the Treasury would "go along" with the dollar-value approach after its acquiescence in the Hutzler decision, but a final disposition had not been made of the cases at issue by early 1949. Taxpayers in the following industries have been cited as using the dollar-value method: a brush manufacturer, a tool manufacturer, one or more textile firms, and a manufacturer of plumbing equipment and related products. Since the Hutzler decision a few companies have also extended Lifo to their supply inventories, using price indexes to eliminate the element of price change from these inventories. The Treasury has not formally ruled on these extensions, but the procedure would seem to be consistent with recent Lifo developments provided that the supplies in question are properly included in inventories.

In terms of statistical methodology, the dollar-value method has definite advantages over either of the methods explained earlier in the chapter. It corrects both for changes in the "mix" of products within an inventory group and for changes in the relative prices of these products between the base period and the current inventory date. In some applications, however, these methodological advantages may be more than offset by inaccuracies in the indexes or equivalent data needed to adjust the beginning and ending inventories to a common price level. This aspect of the problem is discussed in detail in Chapter X as part of the evaluation of the essentially similar use of Lifo by department stores.

The legality of the dollar-value procedure when used in conjunction with the retail method of inventory valuation was clearly established by the Hutzler decision and the Treasury acquiescence therein. But the right of other taxpayers to employ the dollar-value procedure remained in doubt. Two subsequent Tax Court decisions involving a retail grocery chain and a wholesale grocer have validated this procedure applied to merchandising inventories valued on a cost basis.[8] While the Treasury did not formally acquiesce in these decisions, it did not appeal them. Thus, some uncertainty remains as to the official Treasury position. But from the trend of Treasury policy and the decisions of the Tax Court it would seem reasonable to infer that the dollar-value procedure eventually will be approved for use by merchandisers and manufacturers on a cost basis as well as for taxpayers on the retail method.

The taxpayers involved in the Basse and Sweeney cases both valued warehouse inventories at Lifo using the dollar-value technique with the inventory classified into 27 pools in the Basse case and 39 in the Sweeney case. In general, the Lifo procedure for each classification was as follows. The December 31, 1941, inventory was valued at December 31, 1941, costs *and* at December 31, 1940, costs. The latter amount was taken as the ending 1941 inventory if it was less than the actual inventory on hand at December 31, 1940.

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[8] Edgar A. Basse, 10 T. C. (No. 41), February 19, 1948, and Sweeney & Company, Inc., Docket 3374, February 27, 1948.

But if the ending 1941 inventory, stated at December 31, 1940, cost levels, exceeded the ending 1940 inventory, the excess was then increased by the percentage by which December 31, 1941, cost levels exceeded the corresponding December 31, 1940, levels for the classification in question. This excess, revalued to 1941 costs, was added to the ending 1940 inventory to arrive at the Lifo inventory for December 31, 1941. The following tabulations, taken from the findings of fact in the Sweeney case, illustrate these procedures, the first for a department with an inventory increment during the year, and the second for a department with an inventory decrement.[9]

DEPARTMENT WITH INVENTORY INCREMENT

CLASSIFICATION 1 — CANNED VEGETABLES AND VEGETABLE JUICES

	Cost price as of			*Lifo Inventory Value*
	12/31/41	*12/31/40*	*Percentages*	
Opening inventory . . .		$69,084.16	100.00	
Closing inventory . . .	$95,839.97	84,852.01	112.95*	
Opening inventory . . .		69,084.16	100.00	$69,084.16
1941 increase in inventory		15,767.85	112.95	17,809.79
			Total	$86,893.95

*$95,839.97 divided by $84,852.01

DEPARTMENT WITH INVENTORY DECREMENT

CLASSIFICATION 2 — CANNED MEATS

	Cost price as of			*Lifo Inventory Value*
	12/31/41	*12/31/40*	*Percentages*	
Opening inventory . . .		$6,996.46	100.00	
Closing inventory . . .	$5,248.41	5,033.15	104.27*	
Opening inventory . . .		5,033.15	100.00	$5,033.15

*$5,248.41 divided by $5,033.15

As a final point under this heading it should be noted that a few companies have employed modified dollar-value procedures in applying Lifo in their published accounts, although they have not elected the method for tax purposes. The practice of the Caterpillar Tractor Company illustrates this procedure. Caterpillar adopted Lifo in 1947, valuing its entire inventory at January 1, 1947, cost levels. The company's procedure is described in its 1948 *Annual Report:*

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[9] A second issue in the Basse case was the adequacy of a composite price index taken from the taxpayer's warehouse inventories and applied to the retail stores inventories without any departmental classification. On this issue the Court held, over Judge Opper's forceful dissent, that the price increase used in applying Lifo should be reduced from 13.7% to 7% because the taxpayer had not "made proof of the increased costs of the retail stores inventory beyond that discussed." While this part of the Court's decision appears highly arbitrary and Judge Opper's dissent well-taken, the point at issue is of secondary importance to the general acceptability of the dollar-value procedure.

> In determining the results of operations for 1948, as in 1947, the inventories at both the beginning and the end of the year were, with minor exceptions, stated on the basis of the same cost level, namely, that prevailing as of January 1, 1947. This method of stating inventories produces a result approximately equivalent to that obtained by the so-called "last-in, first-out" method of inventory accounting. This is a generally accepted accounting practice designed to permit the allocation of incurred costs in such a manner as to relate them to revenues more nearly on the same price level basis than would the "first-in, first-out" method formerly used by the Company. The general effect is to exclude from reported profits increases in inventory costs since these increases are deemed to be merely the result of rising cost levels. With minor exceptions, the dollar amounts of inventories recorded in the Company's financial statements during these two years reflect only the changes in the physical volume of inventories. Furthermore, since the amounts of profits and inventories have not been inflated for cost increases above the level of January 1, 1947, they will not have to be deflated for decreases in cost levels at least until such time, if ever, as cost levels decline below those prevailing at January 1, 1947. At the end of 1948, the replacement cost of the Company's inventories was approximately $61,350,000 as compared with the amount of $49,754,096 reported in the financial statements on the basis of the approximate cost levels prevailing at January 1, 1947.[10]

While Caterpillar's application of Lifo differs in detail from the procedure required for tax purposes, it should give substantially similar results except when large fluctuations occur in the amount of physical inventories on hand. Whereas the ordinary application of Lifo requires that inventory increments be valued at current-year costs, the Caterpillar procedure values such increments, as well as the inventories on hand at the beginning of the year, at its base-period cost levels — those of January 1, 1947.

[10] Caterpillar Tractor Company, *Annual Report*, 1948, p. 10.

SUMMARY

Among the many detailed requirements for the use of Lifo for tax purposes two stand out as of major importance.

The first is that Lifo inventories must be carried strictly on a cost basis; no writedowns to market prices are permitted if market falls below the book value at which Lifo inventories are carried. This requirement has been a major deterrent to the tax use of Lifo. If it were removed, the difficult problem of balancing the potential tax gains and losses from the election of Lifo would be greatly simplified. The risk of incurring increased tax liabilities by electing Lifo would then be restricted to the rather unlikely probability that special combinations of price movements, physical inventory fluctuations, and changes in tax rates would occur simultaneously.

The second major problem affecting the use of Lifo has been that of defining the types of inventory categories or pools into which Lifo inventories could be grouped. Under the early Bureau requirement that narrowly defined groupings be employed, Lifo was practicable only for companies in a few industries. As the tendency has developed for broader and broader groupings to be permitted, however, the potential industrial scope of the method has become almost unlimited.

CHAPTER IX

Special Problems Arising from Liquidations of Lifo Inventories

LIQUIDATIONS of Lifo inventories raise special problems both for the determination of taxable income and of reported book profits. For tax purposes the major problem thus far encountered has been the treatment to be given involuntarily liquidated wartime inventories. This problem together with analogous peacetime problems is discussed in the immediately following section. The second section of the chapter summarizes briefly some of the more important problems of financial reporting caused by fluctuations (mainly by liquidations) of Lifo inventories.

TAX PROBLEMS ARISING FROM LIFO INVENTORY LIQUIDATIONS

Involuntary Wartime Inventory Liquidations

In 1942 many Lifo taxpayers found themselves confronted with an unanticipated and difficult problem. Wartime shortages of many goods were forcing them to liquidate their physical inventories in whole or in part, or to shift from one kind of inventory to another. Under the usual operation of the Lifo method such liquidations or shifts brought into income the full difference between the 1942 sales price and the Lifo cost of the liquidated inventories, this cost typically being substantially below current replacement costs. To make matters worse, the extra income resulting from the abnormally large profit margin on liquidated Lifo inventories was often subject to the very high excess-profits-tax rates.

Taxpayers in a number of industries petitioned the Treasury and Congress for relief from this unanticipated development. They pointed out that under normal conditions their base-stock inventories would not have been liquidated and hence their taxable income would not have been swollen by charging low-cost inventories against 1942 sales. They claimed that they should not be subjected to an increased tax burden by reason of an unavoidable liquidation in their base-stock inventories caused by the war. They further contended that if profits created by forced inventory liquidations were taxed at wartime rates, they might not have the necessary funds to replenish their inventories and resume peacetime production at the end of hostilities. Finally, they pointed out, such taxation might impede the war program by creating an incentive for Lifo taxpayers threatened with inventory liquidations to delay shipments of goods to maintain their base-stock inventories.

Congress and the Treasury recognized the merits of these claims and a relief provision was enacted as part of the Revenue Act of 1942.[1] This provision, now Section 22(d)-6 of the Internal Revenue Code, was designed to remove from the taxpayer's income the effect of involuntary wartime inventory liquidations. But to make sure that relief would be given only for liquidations that were in fact both temporary and involuntary, the adjustments provided by this provision were delayed until after the liquidated inventories had been replaced.

The relief provision took the following form. Taxpayers with involuntarily liquidated wartime inventories were given permission to elect to have their taxable income in the year of liquidation redetermined, provided that the involuntarily liquidated inventory units were replaced within three years after the end of the war. The amount and direction of the income adjustment were made to depend on the relationship of the cost of the replacement units to that of the involuntarily liquidated units. If the replacement cost was greater than the cost of the liquidated units, the taxable income of the year of liquidation was to be reduced by the difference between the two costs. If the replacement cost was less than the cost of the liquidated units, the taxable income of the year of liquidation was to be increased by this difference. If the two costs were equal, no adjustment was to be made. By special statutory provision no interest is paid on refunds or deficiencies arising from this provision. To prevent the taxable income of the year of replacement from being altered by these adjustments, the replacement inventories were to be taken into purchases and carried in the ending inventory of that year at the same amount, namely, that at which the corresponding liquidated units were charged against income in the year of liquidation.

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[1] Internal Revenue Code, Section 22(d)-6, as amended by the Revenue Act of 1942.

The net effect of these adjustments is to restate both the taxable income of the year of liquidation and the continuing Lifo inventories as though the liquidation had never occurred. Increases or decreases in income in the year of liquidation will be exactly balanced by offsetting changes in the value at which the replacement units are carried in the taxpayer's inventory. To illustrate, if involuntarily liquidated inventories had been charged against income in 1942 at $10 a unit, and were replaced in 1947 at $15 a unit, 1942 income would be reduced by $5 for each unit of inventory goods replaced. Offsetting this reduction, replacement units would be carried in the ending inventory of 1947 at $10 rather than at $15. Income for the year 1947 would not be affected since the replacement units would also be entered in the purchases account at $10. In any subsequent year of inventory liquidation, however, the fact that the units replaced in 1947 had been written down from $15 to $10 would cause a corresponding increase in the income reported in the year of liquidation.

The Treasury regulations provide that the taxpayer shall be eligible for this special treatment:

> If prevailing war conditions beyond the control of the taxpayer should render it impossible during the period of the war for a [Lifo] taxpayer . . . to have on hand at the close of the taxable year a stock of merchandise in kind and description like that included in the opening inventory for the year, or in quantity equal to that of the opening inventory, . . .[2]

For purposes of this provision the war period is defined as any taxable year beginning after December 31, 1940, and ending before January 1, 1948.[3] To be eligible for this special treatment the taxpayer must make a separate and irrevocable election for each year of involuntary liquidation. Such an election, of course, covers the recomputation of inventories and income in the year of replacement, the year of liquidation and in such other years as may be affected.

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[2] Regulations 111, Sec. 29.22(d)-7.

Inventory replacements are deemed to have occurred in any year (subsequent to a year of inventory liquidation) in which the closing inventory reflects an increase over the opening inventory of the particular goods liquidated. To qualify, replacements must be made not later than three years after the end of the war, i.e., in taxable years ending before January 1, 1951. The goods reflecting the increase are considered, in the order of their acquisition, as having been acquired in replacement of the corresponding goods most recently liquidated (whether or not in a year of involuntary liquidation) and not previously replaced.

From the viewpoint of the taxpayer two difficulties have been encountered in the administration of the involuntary liquidation provision. The most important of these is the delay which almost inevitably occurs in the payment of refunds due taxpayers. At the earliest these refunds cannot be received in time to finance the inventory replacements, since the size of the refund does not become determinate until the tax return has been filed for the year of replacement. Typically, moreover, a period of several additional years elapses while the taxpayer's returns for the years affected are being audited. For many taxpayers this auditing process was especially slow during the war years because complex excess-profits-tax problems often had to be settled as well as those arising directly from the involuntary liquidation provision before tax returns could be finally closed. At the time of our field interviews (late 1948 and early 1949) few companies had actually received cash refunds, although the claims of some were in advanced stages of processing.

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[3] The Code and Regulations elaborate in detail the criteria to be used in deciding whether a liquidation is due directly and exclusively to the war. The following criteria are listed: (1) Enemy capture or control of sources of limited foreign supply; (2) Shipping or other transportation shortages; (3) Material shortages resulting from priorities or allocations; (4) Labor shortages; (5) Other prevailing war conditions beyond the control of the taxpayer.

While relatively few companies have sufficiently large outstanding refunds to affect their over-all financial position seriously, the matter assumed major proportions for some companies with especially large inventory liquidations. These taxpayers petitioned Congress and the Treasury for relief, urging (1) that a plan for accelerated payment of their refunds on account of inventory replacements, similar to that provided for carry-back refunds under the Tax Adjustment Act of 1945, be worked out, or (2) that their outstanding refunds be made interest-bearing. The motivation for the latter proposal was as much to put pressure on the Treasury to accelerate refunds as to accumulate interest on these refunds.

The desired relief was nearly obtained as part of the Revenue Revision Act of 1948 (H. R. 6712). This act, which was passed by the House but not by the Senate, stipulated that refund and deficiency payments on account of involuntary inventory liquidations be made interest-bearing. After outlining the substance of the problem, the Report of the Committee on Ways and Means stated:

> Meanwhile these taxpayers are being denied the use of their money and are receiving no interest for its use by the Government. For this reason your committee's bill . . . amends the Internal Revenue Code to provide that deficiencies payable because of such inventory adjustments bear interest beginning January 1, 1948, or the date for the payment of the tax for the year of the replacement whichever is later. Interest on refunds so arising is to be allowed beginning January 1, 1948, or 1 year from the date of filing the claims for refund, whichever is the later. Interest payments are not provided for earlier periods because it is not believed that interest should be payable during what might be called a normal lag in the determination of the tax liabilities for the years in question.[4]

After this bill died in the Senate the situation remained unchanged until February, 1949, when the Treasury issued a ruling authorizing accelerated payment of up to 75% of the net refunds due to taxpayers on account of the replacement of involuntarily liquidated inventories. Upon application by the taxpayer these refunds are to be made on an interim basis in advance of the final audit of the tax returns for the years in question. While the terms on which the refunds are made are carefully circumscribed to protect the Treasury from ultimate revenue loss, the ruling should provide substantial relief to the taxpayers with an urgent need for the working capital represented by their refund claims.[5]

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[4] House Report, No. 2087, 80th Congress, 2d Session, p. 25.

The financial problems encountered by some companies because of the delay in the receipt of refunds have been accentuated by the hesitancy of lending institutions to regard these claims as bankable assets. The attitude of the lending institutions apparently has been colored both by uncertainty as to the timing of the refunds and by unfamiliarity with the nature of the claim itself.

The second main problem arising in the administration of the involuntary liquidation provision has to do with the question of inventory groupings. The nature of the difficulty is clearly explained in the House Report just cited; the same bill also contained remedial legislation on this point.

> Present law also requires that in order to obtain the special relief provided for the involuntary liquidation and replacement of inventory, taxpayers exercise an election in their returns for the years in which the liquidation occurs. The attention of your committee has been called to the fact that in some cases, through no fault of their own, taxpayers have not known at the time of filing such return that it would be to their advantage to make this election. For example, cases exist where Government agents have segregated into two groups inventory items which the taxpayer considered as one group. As a result of the segregation it is now held that a liquidation occurred of one group, although no decrease in the number of the two groups combined occurred. Not having made a timely election, the taxpayer cannot apply the excess cost of replacing these items in a subsequent year as a deduction for the year of such reclassification.
>
> Your committee's bill . . . gives the Commissioner of Internal Revenue discretion in determining when the taxpayer

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[5] The provision for accelerated refunds is described in detail in Treasury Mimeograph No. 6361, 1949-Int. Rev. Bull. No. 6, 20.

> must exercise the election under the involuntary liquidation and replacement provision, so that it will be possible for him to provide relief in such hardship cases.[6]

Our field work is somewhat inconclusive on the question of Treasury policy in the event of involuntary liquidations "created" by revisions in inventory groupings. At least one company has encountered precisely the difficulty described in the preceding quotation; the Treasury has turned down (or at least held up) the taxpayer's request to qualify retroactively for involuntary liquidation refunds when such liquidations were created by Treasury reclassifications in inventory groups. In other instances, however, no question has been raised as to the taxpayer's right to revise his involuntary liquidation claims as a result of revised inventory groupings. In the first instance, the taxpayer had not elected to have the involuntary liquidation apply because his tax return showed no liquidations (or minor liquidations) as originally filed. In the second group of instances the taxpayers had admittedly filed their initial returns with tentative Lifo categories and, consequently, had merely filed blanket claims to qualify all involuntary liquidations for special treatment. Thus, there is a reasonable basis for distinguishing these cases on their facts.

A related difficulty arises for taxpayers applying Lifo on a dollar-value approach. With inclusive inventory groupings the issue has been raised as to whether replacement units in any given inventory group were in fact identical with the liquidated units, and, if not, whether they could qualify as replacements under Section 22(d)-6. While this issue was unsettled at the time of our interviews, the indications were that the Bureau probably would take a liberal view of such replacements along with the general relaxation of its administrative requirements in applying Lifo.

As a general statement, the Bureau seems to be following a liberal policy in its administration of the involuntary relief provision. For instance, the Bureau apparently has been quite liberal in construing the concept of involuntary wartime liquidations. Likewise, cases have been cited to us in which Bureau officials have allowed taxpayers to qualify for relief, provided that their intent was clear, even though the details of their formal applications were incorrectly handled.

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[6] House Report, No. 2087, p. 25.

Peacetime Lifo Inventory Liquidations

The expiration as of January 1, 1948, of the special treatment for involuntarily liquidated wartime inventories raises the question as to whether analogous problems arise in peacetime. Suppose, for instance, that inventories happen to be abnormally low because of, say, a strike in the plant of a major supplier, or, to take a more extreme example, a fire in the taxpayer's plant near the end of the year. Would it be consistent with the Lifo principle to regard gains or losses on such inventory liquidations as realized income or are they more analogous to involuntary wartime liquidations? The latter would seem to be the case.

This question is bound to be raised now that the special wartime dispensation has expired. There probably will be pressure to allow Lifo liquidations as a general procedure to be costed at current price levels. While such a modification in the law would be unwarranted, some recognition of the situation created by genuinely involuntary peacetime liquidations would be defensible. Two possible approaches come immediately to mind: (1) to authorize the Treasury to certify certain types of liquidations as involuntary and to extend treatment similar to that provided during the war; or (2) to assume that all liquidations replaced within, say, a year are involuntary and hence eligible for special treatment. In other words, while a limited modification of Lifo in the direction of the normal-stock method would be defensible, a complete adoption of the principle that all inventory liquidations should be charged against taxable income at replacement cost levels would be unwarranted.[7]

The appropriate treatment of liquidated inventories, as of the end of a year, is really just an extension of the problem of how to handle fluctuations within a taxable year. The tax law now follows the essentially arbitrary practice of ignoring inventory liquidations within the year but of requiring that all liquidations as of the end of an accounting period be treated as a realization of income or loss. Lifo taxpayers with seasonally fluctuating inventories whose taxable years end at some time other than the seasonal low regularly liquidate some of their Lifo base inventories during the year but restore them by the end of their taxable year. While the application of Lifo to such seasonally fluctuating inventories has sometimes been sharply criticized, the criticism seems unjustified. The cash freed by liquidations of seasonal inventories is not disposable but must be retained to restore inventories at the next seasonal peak. Unless Lifo is regarded as a literal application of a flow-of-goods costing procedure, the realities of the situation are not significantly changed by regularly recurring seasonal fluctuations in inventory investments.

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[7] There is a close analogy between involuntary liquidations of Lifo inventories and the involuntary conversion of property upon, say, destruction of insured property by fire or storm. Recognition of gain on such conversions is deferred provided the proceeds resulting from the property destruction are forthwith invested in similar or related property. A similar provision could easily be constructed to govern the treatment of liquidated Lifo inventories.

PROBLEMS IN FINANCIAL REPORTING ARISING FROM FLUCTUATIONS IN SIZE OF LIFO INVENTORIES

Fluctuations in the size of Lifo inventories raise a number of problems for financial reporting, some of which have no direct tax counterparts. For annual reports, liquidations of Lifo inventories (typically carried at much less than current replacement costs) pose the question of the advisability of taking the full gain on low-cost inventories into income. The policies followed by most companies depend largely on whether the liquidations are voluntary or involuntary and on the length of time expected to elapse before replacement.

When inventory liquidations are voluntary and replacements are not anticipated in the relatively near future, the full gain on the liquidated inventories is ordinarily taken into income. Under these circumstances the gain clearly has been realized in both an accounting and an economic sense. While the inclusion of such nonrecurring gains in annual income may distort the operating profits of a company, it would seem that this distortion could be handled as well by earmarking the amount of the gain resulting from Lifo liquidations as by excluding it entirely from the year's income. As to company practices, no special mention of the effect of inventory liquidations on profits is ordinarily made except when the liquidations are seasonal in nature or are subject to the involuntary liquidation provision of the tax law. Occasionally, however, financial statements or the accompanying president's letter comment specifically on the presence or absence of inventory liquidations and their effect on profits. For instance, the *Annual Report* of the Scovill Manufacturing Company for the year 1948 contains the following statement:

> Quantities of metals carried in our inventories at these low "Lifo" prices were generally maintained during the year, and accordingly, with minor exception, our earnings for the year contain no profits from the sale of low priced metals.

Another illustration of specific comment on the effect of inventory liquidations is contained in the 1947 *Annual Report* of the West Point Manufacturing Company, which reads in part:

> The gross profit for the year was increased by approximately $3,700,000 as a result of the reduction in last-in, first-out inventory quantities.

The significance of net income statements of Lifo companies would be greatly increased if the practice of reporting the approximate effect on profits of the liquidation of Lifo inventories were generally followed.

The problem takes on a different character, however, if Lifo inventory liquidations occurring at the end of a fiscal year are expected to be replaced within a matter of months. This situation may arise because of a sudden spurt of sales near the end of the year or unexpected interruptions in procurement caused by, say, a strike in a supplier's plant or a transportation tie-up. Under these circumstances it is generally agreed that a reserve set up out of income to absorb the excess costs of replacing the liquidated inventories would be in accord with acceptable accounting principles. Now that the involuntary liquidation provision of the tax law has expired, however, the creation of such a reserve would cause divergences between income as computed for book and tax purposes and also between inventory valuations in subsequent years for the two purposes.

In the meat packing industry a specialized problem has arisen for several companies which customarily report profits to stockholders for fiscal years ending about October 31, when inventories are seasonally low, but file their tax returns for years ending December 31, when inventories are much higher.[8] Under these circumstances a profit is realized between January 1 and October 31 from the liquidation of Lifo inventories, but this profit is reversed in November and December when the liquidated inventories are replaced at costs which in recent years have been well in excess of basic Lifo values. To avoid distorting income, companies facing this problem (e.g., Swift, Wilson, Hunter, and Morrell) typically have set up a provision out of income to cover the excess of the estimated cost of the seasonal replacements over their basic Lifo values, after deducting applicable income taxes. This practice is necessary in order to determine the appropriate charge against income for federal taxes, since taxable income is computed on the basis of the inventories held at the end of the calendar year rather than at October 31. The companies setting up such provisions typically show them on their balance sheets as current liabilities. The appropriate size of the provision ordinarily can be determined with reasonable precision since the annual reports of these companies are not issued until near or after the end of the calendar year.

In recent years, by far the most frequent reporting problem encountered by Lifo taxpayers in connection with inventory liquidations has been how to handle gains from involuntary liquidations subject to the special wartime tax treatment. It is generally agreed that a reserve may be set up out of income to cover the excess cost of replacing such liquidations after allowing for recoverable taxes. Mr. Carman G. Blough, for instance, aptly likens involuntary inventory liquidations

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[8] The same general problem has also arisen for some Lifo companies in other industries which report book profits on a fiscal year different from their tax year.

"to a situation in which a company finds it necessary to go out and borrow goods from a competitor to make a required current delivery." He points out that:

> . . . When a company borrows goods in that way, accepted accounting procedures have long recognized that it is necessary to set up a liability for the amount it is expected will be required to replace the borrowed goods. Similarly, in the case of a forced liquidation there would seem to be strong justification for requiring the recognition of a liability to put the company's inventory back into the position in which it must be maintained for effective business operations.[9]

While many companies have set up such reserves, others have included the full gain on involuntary liquidations in income, often without any comment as to its effect on income. When a reserve is set up, the precise manner of determining its size is, generally speaking, not described; in most instances, however, the amount is probably approximately equal to the excess of the replacement cost of the liquidated Lifo inventories as of the end of the fiscal year over their Lifo values after allowing for recoverable taxes. Other possible bases for determining the amount of the reserve would be the latest replacement cost available when the financial statement was prepared or the management's guess as to the probable replacement cost.

If a reserve for replacement is set up and replacement is not made in the next year, and if prices continue to rise (as was typical during 1942-1947), the decision must then be made as to the advisability of increasing the size of the reserve so that it will fully cover the gap between current replacement costs and Lifo values. Any way of meeting this situation presents difficulties. If the reserve is left unchanged, it will not be adequate to absorb replacement costs unless the price trend is reversed before the date of replacement or the liquidated units are only partly replaced; difficulties will then be encountered in accounting for the replacements when they are made. On the other hand, if the reserve is increased, a charge to income (or to surplus) will be required; it is a little hard to see how such a charge can be justified as an expense of the current period.

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[9] Carman G. Blough, "Reserves for Involuntarily Liquidated Inventories under the Lifo Method," *Journal of Accountancy*, March, 1948, p. 205.

Few companies disclose how they have met this problem, but isolated examples can be found of divergent treatments. The Archer-Daniels-Midland Company has reported its procedures more fully than any other company that has come to our attention. This company has followed the practice of adjusting its replacement reserves annually to reflect both additional liquidations or replacements and changes in the prices of the liquidated goods. The following description, appearing as a note to its financial statements for the year ended June 30, 1947, illustrates the company practice and its policy of detailed disclosure:

> The inventories of certain oils at June 30, 1947 (which are priced on the basis of the last-in, first-out principle as in previous years) are below established base quantities, and the reserve for replacement has been adjusted (by charges to profit and loss) to cover the excess cost of replacing the liquidated quantities over the amount at which they will be inventoried (principally cost prices as at December 31, 1940), when and as replaced, on the last-in, first-out basis. The principal reason for the increase in the replacement reserve arises from substantial increases, particularly during the past year, in the market prices of products to be replaced and to a minor degree in further liquidation of quantities of certain products. The changes in the reserve are summarized below:

	Replacement Reserve	*Recoverable Income Taxes*	*Net Amount*
Balance at July 1, 1946	$7,620,000	$3,900,000	$3,720,000
Estimated cost (in excess of inventory valuation) of replacing inventories liquidated	9,330,000	4,629,000	4,701,000
Balance at June 30, 1947	$16,950,000	$8,529,000	$8,421,000

The November 1, 1947, report of John Morrell & Company illustrates the opposite practice of not adjusting reserves to reflect price changes. Its auditors' report comments as follows:

> The reserve for replacement of basic "last-in, first-out" inventory stocks has not been adjusted to cover charges which would be sustained if all the stocks involuntarily liquidated

> were replaced at prices in effect at November 1, 1947 since, in the opinion of the management, the reserve is adequate to cover the net additional cost of liquidated stocks expected to be replaced within the limited time provided under the relief provisions of the federal income tax laws.

When involuntarily liquidated units are replaced, the appropriate accounting treatment depends on whether a reserve has been set up to absorb the excess replacement costs. If a reserve of adequate size is already on the books, income of the year of replacement will not be affected by the replacement. In this case the write-down of inventories to their former Lifo values will be fully absorbed by the recoverable taxes and a charge to the reserve equal to the excess of replacement costs over Lifo values (net of recoverable taxes). The recoverable taxes, resulting from the retroactive revision of taxable income in the year of liquidation, are carried by some companies as a long-term receivable (e.g., Swift & Company) or a "sundry asset" (e.g., Armstrong Cork Company), and by others as a reduction of the provision for income taxes (e.g., Archer-Daniels-Midland Company). Until February, 1949, at least, the latter practice often had the effect of offsetting assets which might not be turned into cash for several years against liabilities that would have to be paid in the near future. Until the plan for accelerated payments was approved by the Bureau, the timing of tax refunds from inventory replacements was very uncertain and, unless the Bureau audit was in an advanced stage, the date when claims for refunds would be paid was unpredictable.

If no reserve (or an inadequate reserve) has been established for the replacement of involuntarily liquidated units, in the year of replacement it will be necessary to charge income or surplus by the amount of the inventory write-down not covered by recoverable taxes. Swift & Company, for instance, partly replaced its involuntarily liquidated Lifo inventories during the fiscal year ending October 30, 1948. As required for tax purposes, inventories were written down by $36.9 million, the excess of replacement costs over the Lifo values of the replaced units. Recoverable income taxes absorbed $24.3 million of this write-down, but $12.6 million remained and was charged against the year's income. The same general procedure has been followed by a number of companies, but occasionally the charge has been made to earned surplus rather than to net income (e.g., Holly Sugar Corporation as reported in *Moody's*, 1948 edition). The charge to surplus has the advantage of not distorting income by charging against it an item which has no real bearing on the operations of the current year, but it has the disadvantage of overstating a company's aggregate earnings over the period including both the liquidation and replacement years. The choice between the income and surplus charge will be determined by whether more emphasis is placed on a "sharp" definition of income in the current year or on a more precise statement of aggregate income over a period of years.

In preparing interim statements of Lifo companies many of the problems encountered are essentially the same as those arising in the handling of wartime involuntary inventory liquidations — except that the time span is greatly compressed. Three typical patterns of fluctuations in physical inventories will be singled out for discussion: (1) stable inventory quantities throughout the year; (2) seasonal peaks at the beginning and end of the year with an intervening seasonal low; and (3) the reverse pattern of seasonal lows at the beginning and end of the year with an intervening seasonal peak.

When physical inventories are typically stable throughout the year, no serious difficulties are encountered. A strict Lifo procedure can be applied in, say, quarterly statements without seriously distorting income. Sales of each quarter will be charged with the costs incurred in the same quarter. To the extent that complete stability of inventories is approached, Lifo applied on an annual basis will approximate the same total income (and ending inventory valuation) as will be obtained by adding together four quarterly statements with the Lifo principle applied strictly in determining the income for each quarter. This ideal will never be completely achieved in practice, but some companies approach it to such a degree that their managements compute quarterly income statements on a strict Lifo basis.

When a marked seasonal dip in inventories occurs during the year, however, a strict application of the Lifo principle to interim statements would badly distort income. The effect would parallel closely the typical wartime involuntary liquidation pattern. On the assumption that current replacement costs exceed Lifo inventory values, a strict Lifo procedure would show abnormally high profits during the months of inventory liquidation and abnormally low profits during the months of inventory replacement.

Suppose, for instance, (1) that a beginning inventory of 10,000 units was reduced to 4,000 units by, say, the end of June and then built back up to 10,000 by the end of December, and (2) that the Lifo value of the opening inventory was $8 a unit and the current replacement cost of the same goods $12 a unit. A strict Lifo procedure for the six months ending June 30 would show an abnormal profit of $24,000; the $4 difference between current and Lifo costs would be taken into income to the extent of the 6,000 liquidated inventory units. In the last six months of the year, as the liquidated inventories were replaced, this abnormal profit of $24,000 would have to be reversed or the sum of the profits shown for the interim statements would exceed the net income for the year with Lifo computed on an annual basis.[10]

The typical method of handling seasonal dips in inventory is to create out of income a reserve for the replacement of seasonally liquidated inventories. The size of the reserve is usually determined by the difference between current replacement costs and the Lifo base price of the liquidated units, multiplied by the number of units liquidated. If the provision for income taxes is made against income which includes the full gain on the liquidated inventories, the size of the reserve will be net of the applicable tax savings on replacement. At the time of replacement the reserve will be available to absorb the necessary write-down of the replacement units to their Lifo base values. The reserve will, of course, be exactly equal to the amount of this write-down only if the replacement cost is the same as the amount provided for when the reserve was established. In practice, variations are found in the precise way in which the problem of seasonal dips in inventories is handled, but most companies follow essentially this general procedure.

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[10] Actually, if Lifo were applied on a strict semiannual basis under these hypothetical conditions, 4,000 units of the ending inventory would be valued at $8 and 6,000 units at $12. On an annual basis, as Lifo is computed for tax purposes, however, no liquidation would have occurred and the entire ending inventory of 10,000 units would still be carried at $8. The abnormally low statement of income which would be incurred during the second half of the year in the above illustration can be regarded as arising from the necessity of writing down the 6,000 units replaced at $12 during the second half of the year to the $8 figure at which they will be carried in the December 31 inventory.

The situation is different for companies which close their year at a seasonal low and build up to a peak sometime during the year. In general, the distortions of income in interim statements will be much less for such companies than for those just discussed. If inventories are built up to a peak in, say, June and then drawn down in the second half of the year, sales during the July-December semiannual period will be charged in part with costs of the January-June period. But, in the absence of violent price fluctuations during the year the distortion in the semiannual income statements will not be great and, in any event, the sum of the two semiannual income statements will tend to equal the income for the year with Lifo computed annually. Thus, the distortions in interim statements prepared on a strict Lifo basis are much less severe when the year ends at a seasonal low than when it ends at a seasonal high.

To this point we have assumed that the ending physical inventory will be equal to the beginning inventory. Different problems arise for interim reports if the ending physical inventory is substantially different from the beginning inventory. If the ending physical inventory is smaller than the beginning inventory, net income before taxes for the year will be increased by the difference between the current replacement costs and the Lifo cost of the liquidated units — on the assumption no reserve is set up for the eventual replacement of the liquidations. If no recognition is taken of this liquidation in, say, the first three quarterly statements, the income assigned to the fourth quarter will be increased by the full amount of this abnormal gain. Thus, the fourth quarterly statement will be affected more, percentagewise, by the inventory liquidation than will the annual statement of net income.

If the inventory liquidation represents a deliberate management policy determined early in the year, and particularly if the liquidation actually occurs gradually during the year, the relationship of quarterly to annual earnings would be better reflected by taking the gain on liquidation into income gradually during the year rather than all in the last quarter.

If physical inventories are expanded during the year, the valuation assigned to the inventory increments will depend on whether they are deemed to arise from the earliest, most recent, or average purchases of the year. If the strict Lifo assumption is made that the earliest purchases constitute the increment, then the final valuation to be placed on the increments as of the end of the year can usually be determined by the end of the first (or at any rate the second) quarter. Thus, no adjustment in inventory valuations for added units will be required between the interim and annual inventory valuations. On the other hand, if the inventory increment is assigned the costs of the most recent purchases, its valuation cannot be determined until the year has ended. If increments are valued for quarterly statements at the most recent purchases in the quarter, revised valuations will be placed on the increments at the end of each quarter. In effect, quarterly statements prepared in this manner reflect inventory profits and losses resulting from price fluctuations during the year to the extent of any inventory increments.

Conclusion

If Lifo inventories are carried on a company's books at prices markedly different from their replacement costs, the liquidation of such inventories may have a sizable effect on net income. During the war taxpayers were permitted to elect a special treatment for involuntarily liquidated wartime inventories which, in effect, allowed them to determine their taxable income as though such liquidations had never occurred. The special treatment becomes operative, however, only after the liquidated inventories have been replaced.

The tax law currently contains no provision for special treatment of Lifo inventory liquidations occurring after December 31, 1947. As a *general* statement this situation appears reasonable, inasmuch as income clearly is realized in both an accounting and economic sense when Lifo inventories are liquidated. A strong case for an exception to the general rule can be made, however, for peacetime inventory liquidations which are both temporary and involuntary. The analogy between such liquidations and involuntary wartime liquidations (or the general tax treatment of involuntary conversions of property), is sufficiently close to provide the basis for a strong case for the special treatment of such liquidations.

Comparable problems for financial reporting arise when Lifo inventories are liquidated — especially if they are carried at costs well below replacement costs. No standard accounting practice is generally followed by Lifo companies when such liquidations occur, and the preferable treatment undoubtedly varies with the circumstances of the individual case. For financial reporting, however, a stronger case can often be made for eliminating the effect of Lifo liquidations from income than can be made for tax purposes.

CHAPTER X

The Retail Method and Its Lifo Adaptation

THE retail inventory method has been segregated for special treatment because since 1941 the main controversy concerning the use of Lifo for tax purposes has revolved about it. Ten years ago the suggestion that within a few years many large department stores would be on Lifo would have been regarded as fantastic. But in the year ended January 31, 1948, department and specialty stores with sales aggregating more than $1 billion reported their income on a Lifo basis; most of these stores adopted Lifo in 1941. An active campaign is now (early in 1949) in process to permit all retail merchants to elect Lifo retroactively to January 31, 1941.

This chapter relates these developments. First, the retail method is very briefly described. The steps leading to the application of the Lifo principle to department-store inventories and the eventual recognition of this procedure by the Treasury are then recounted. Next the issues left in the wake of these developments are evaluated. Finally, following a more detailed description of the retail method and its Lifo adaptation, the problems arising therefrom are considered.

The retail method is generally recognized as a convenient means of approximating a lower-of-cost-or-market valuation of retail inventories. Under this method inventories are first priced by departments (or other convenient classifications) at their aggregate retail values and then reduced to an approximate lower-of-cost-or-market figure by an adjustment reflecting the average gross markup on goods handled during the year. The physical identity of goods within a departmental inventory is not preserved; rather, all items are expressed in dollar terms and the necessary adjustments are made to the dollar aggregates on the basis of average departmental experience.[1]

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[1] A more complete statement of the retail method is presented later in this chapter.

The failure of the retail method to maintain the identity of individual inventory items completely rules out any possibility of applying Lifo in the usual manner. Moreover, apart from the special characteristics of the retail method, most mercantile inventories are too diversified and highly stylized to permit the item-by-item identification of beginning and ending inventories requisite to the traditional Lifo method. But, irrespective of the feasibility of applying Lifo to department-store inventories, in periods of rising prices and heavy taxes department stores are confronted with extraordinarily severe inventory and working capital problems. Their inventories are large in relation to total assets or net worth, and as Chapter II has shown, different inventory methods have a pronounced effect on their profits in times of fluctuating prices.

In 1941, under the pressure of rapidly rising prices and heavy wartime taxation, a number of leading retailers became actively concerned about the need for removing the effects of price inflation from their inventory accounts and hence their taxable income. The Controllers' Congress of the National Retail Dry Goods Association appointed a committee to study the problem of merchandise reserves. This committee developed a modified application of the Lifo principle to be used in conjunction with the retail method of inventory valuation.

The committee started from the assumption that an item-by-item identification of department-store inventories would be completely impractical. But it believed that substantially the same result could be achieved in principle by comparing the opening and closing inventories of all merchandise on hand by departmental classifications. The committee proposed to eliminate the effect of price changes from inventory accounts on a departmental basis by deflating each departmental inventory by an appropriate price index. In substance, though not in detail, the technique was very similar to the dollar-value procedure described in the preceding chapter in the discussion of the Basse and Sweeney cases. The necessary price indexes, computed separately for about 50 separate classifications, were prepared by the National Industrial Conference Board at the request of the NRDGA.

The method as thus developed was vigorously promoted by the NRDGA and was adopted by a number of large department stores and a few stores in other areas of retail trade. An aggressive campaign was also instituted to obtain Treasury approval of the method for income tax purposes; indeed, the hope of achieving large tax savings was the main incentive actuating the proponents of the method.

Extensive discussions concerning the appropriateness of the method for tax purposes were held with representatives of the Treasury Department and the Bureau of Internal Revenue during late 1941 and 1942. The Treasury representatives were sympathetic to the problem confronting the retailers, but they had grave doubts as to the administrative feasibility and, indeed, the legality of the radical modification of the Lifo procedure advocated by the retailers. The Treasury was also confronted by the necessity of providing equal treatment for taxpayers in various industries; it would have been hard put to authorize the use of price indexes in connection with Lifo for department stores unless it was willing to allow other taxpayers to adopt similar techniques. (At this time, the Treasury had not approved the dollar-value procedure as now occasionally used in other industries.) Finally, the potential administrative burden of constructing or policing numerous index numbers appeared overwhelming, especially when the administrative resources of the Treasury and Bureau of Internal Revenue were already strained by the wartime tax program.

After lengthy consultation with the industry the Treasury eventually developed a proposal for an inventory reserve for postwar price declines that was designed to accomplish *on a temporary basis* much the same results as the modified Lifo procedure advocated by the retailers. The Treasury proposal, discussed in more detail in Appendix B, was sympathetically received by the retailers. On behalf of the Treasury Mr. Randolph Paul supported the reserve proposal in a statement before the House Ways and Means Committee in June, 1942, and later a modified proposal before the Senate Finance Committee. After deliberation, however, the Finance Committee decided to substitute a two-year carry-back of net operating losses and unused excess profits credits for various reserve proposals including that for inventory price declines. The carry-back provisions were subsequently enacted as part of the Revenue Act of 1942.

In a sense this turn of events restored the *status quo ante* with respect to the retailers' problem. While the carry-back provisions were of great potential benefit to many taxpayers — far greater indeed than was generally recognized by most taxpayers at the time of their enactment — they were not a complete substitute for Lifo. Over Treasury opposition the retailers continued to press their right under the existing statute to adopt Lifo, using price indexes in its application.

Faced by Treasury opposition the managements of various leading department stores followed different courses of action. Approximately 45 companies decided to file their tax returns on a Lifo basis, despite the known Treasury opposition to this procedure, and to submit the issue for litigation if necessary. Other stores initially filed their returns on Lifo, but after a year or two yielded to Treasury opposition and reverted to the traditional retail method. A third group of stores ceased to press the issue immediately on encountering firm Treasury opposition; some of these stores, however, filed statements reserving their rights to shift to Lifo, if the method should be subsequently upheld by the courts. Finally, a fourth group of stores — including the great bulk of the small, independent stores in the country — never made any effort to adopt Lifo.

The Treasury proceeded to assess deficiencies against those companies that filed their tax returns on Lifo. To resolve the issue, the Hutzler Brothers Company was selected by the industry with the concurrence of the Bureau as a test case to be tried before the Tax Court.[2] In January, 1947, the Court held that the use of Lifo in conjunction with the retail inventory method was a valid procedure under the existing statute.[3] The Treasury after extensive deliberation decided to acquiesce; in March, 1948, a Treasury Decision was issued modifying the regulations to conform with the Hutzler decision.[4] Thus after approximately six years of uncertainty the main outlines of the problem, at least with reference to companies using the retail method, were settled.

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[2] D. M. Freudenthal, "The History of the Lifo Case and a Summary of the Findings," *The Balance Sheet*, April, 1948, p. 10.

[3] Hutzler Brothers Company, 8 Tax Court 14 (1947).

As of the date of the Hutzler decision, however, it was still an open question whether taxpayers not on the retail method could use the dollar-value procedure in applying Lifo. Part of Judge Opper's opinion appeared to be concerned only with the immediate question at issue — whether a taxpayer using the retail inventory method is authorized by Section 22(d) of the Code to adopt Lifo, using price indexes in its application. Other parts of the opinion were so broadly phrased, however, that the logic behind them seemed to approve the use of price indexes in valuing the inventories of almost any taxpayer, regardless of whether the retail inventory method was employed.

The narrower interpretation of the Opper opinion could be supported by such statements as the following:

> The controversies calling for decision can be reduced to whether the statutory grant of leave to use the last-in first-out method is applicable to a taxpayer maintaining inventories by use of the retail system; and, if so, what method represents a permissible means of securing the benefits of the section.

In discussing the general issues raised, however, the phraseology often appears much broader in its significance. For instance, at another point Judge Opper states:

> The fundamental proposition about which the present proceeding revolves is the possibility and desirability of eliminating from an inventory kept in dollars that part which represents not an increase in physical inventory, but merely an expanded dollar figure at which that inventory is being carried.

The Basse and Sweeney cases, which followed the Hutzler case, seem clearly to indicate that the Tax Court intended the Hutzler decision to be broadly interpreted.

Judge Opper's opinion ignores the problems involved in determining the appropriate price index to be used and the magnitude of the errors entering into any feasible index. The Opper opinion in effect dodges the first problem by finding that the Hutzler company should use an index which the Treasury had indicated was "less objectionable than others" and by broadly suggesting that the Commissioner might prepare an administrative regulation with reference to the price index to be used in future applications. The second problem — that of the margin of error involved in any particular index — was completely ignored even though the Court's "findings of fact" indicated that the errors might be substantial.[5]

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[4] T. D. 5605, 1948-1 Cum. Bull. 16 and Mimeograph 6244, 1948-1 Cum. Bull. 21.

The long delay in determining the legality of the dollar-value procedure has raised a very difficult problem which is still unresolved. As already indicated, some taxpayers abandoned their Lifo elections (or refrained from filing on Lifo) on account of the Treasury opposition to the method. Some of these taxpayers apparently received the impression that the Treasury would permit them to adopt Lifo retroactively to 1941 if the legality of the method should be subsequently established. These taxpayers are now seeking the right to make such a retroactive election; they point out that, unless they are allowed to do so, they will be penalized because of their willingness to cooperate with the Treasury.

The campaign for a retroactive election of Lifo has spread to other parts of the industry. As Mr. John J. Kavanagh stated in commenting on the aftermath of the Treasury acquiescence in the Hutzler decision:

> The end was not yet. Lifo entered a new phase. Retroactivity of its benefits was demanded for all retail merchants. The trade insisted all should now have a free choice in selecting the Lifo method of arriving at taxable income granted taxpayers by Congress in 1939 as a public policy. Administrative regulations were requested to permit retail taxpayers to exercise this statutory right as of the fiscal year 1941 and for all years thereafter, if such were the taxpayers' election. Big retail establishments promised more litigation, if necessary, to obtain this right — to retroactively amend their tax returns for open and

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[5] The problems incident to setting up an appropriate price index are discussed later in this chapter.

> closed years; others expect appropriate legislation to remedy the tax discrimination. . . .[6]

Some stores perhaps have a strong claim for relief; the strength of their claims depends largely on the precise nature of any commitments made to them by the Bureau, a point on which we do not have detailed information. But the practical problem of how to grant this relief in an equitable manner presents imposing and perhaps insoluble difficulties. Of necessity a line must be drawn that will exclude some taxpayers who will believe that they have been treated arbitrarily and unfairly.

Within retail trade, as has been noted, the response of stores toward Lifo in 1941 varied by almost imperceptible gradations from those that actually filed tax returns on Lifo for one or more years to those that paid no attention whatsoever to the method.[7] The latter group of stores (probably the large majority) could not equitably be granted a retroactive election of Lifo unless similar permission were extended to all taxpayers. For under the general interpretation of Lifo in 1941 many manufacturing and other mercantile companies with highly variegated inventories were effectively barred from using Lifo. The barrier consisted of both the Treasury administrative policies and the prevailing accounting view that the appropriate use of Lifo was limited to a relatively narrow range of industries.[8] No valid distinction can be drawn between retail stores which did not seriously consider the election of Lifo and these other taxpayers to whom the method was regarded as equally inapplicable. To select taxpayers in one industry arbitrarily and grant them the huge and certain refunds that would result from a retroactive election of Lifo with full knowledge of the benefits to be derived therefrom would be grossly inequitable.

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[6] John J. Kavanagh, "Lifo . . . An Inventory Prescription," *Department Store Economist*, December, 1948, pp. 17-18.

[7] We understand that the Bureau has permitted a very small number of stores which actually elected Lifo and filed tax returns on Lifo, but which later abandoned the method on receipt of an unfavorable ruling by the Bureau, to revert to Lifo. The logic of this ruling is that once these stores had elected Lifo, it (under the Hutzler decision) became the proper statutory method for them to use and their reversion to the traditional retail method was out of order.

[8] See Chapter IV, pp. 65-66, and Chapter VIII, pp. 171-172.

Entirely apart from questions of equity, the administrative and fiscal implications of the proposal that all retail stores be allowed to elect Lifo retroactively are startling, to say the least. If complete retroactivity were granted, tens of thousands of tax returns might have to be opened over a period of eight years or more. Tax refunds would have to be made in amounts that have been variously estimated from $500 million to $2 billion, although the latter figure (and possibly the former) is almost certainly too high. If the retroactive election were extended to other industries as well, as equity would seem to require, the administrative difficulties and the size of the refunds would be compounded.

Any step short of a general option, however, will necessarily draw an arbitrary dividing line. Nevertheless, if relief is to be granted, the only practicable procedure would be to require retail taxpayers to prove as a condition of relief that their failure to adopt Lifo in 1941 was directly attributable to commitments made by the Bureau. The defense for such a procedure is not that it would achieve complete equity, but rather that it would minimize the unavoidable inequities inherent in the situation.

Even if the Treasury should desire to grant the power of retroactive election to some stores, it may not have the necessary authority. The statute requires that taxpayers file a prescribed form with the Commissioner if they wish to adopt Lifo; some stores with strong claims for relief never met this requirement. Moreover, even for those that did, the Code also requires that taxpayers using Lifo for tax purposes shall also use it in all annual financial reports issued after Lifo has been elected. But, except for one or two years, the stores seeking relief have consistently prepared both their financial reports and their tax returns on a non-Lifo basis. Consequently, Congressional action would seem to be needed to remove this legal barrier, provided that the claims of some stores for relief are deemed worthy of approval.

Some of the advocates of relief have not stopped with the claim that a retroactive election of Lifo be granted; they also claim that retail stores should be allowed to qualify retroactively for relief under the involuntary liquidation provision.

If this privilege were also granted, the tables would be completely turned. The stores eligible for a retroactive election of Lifo would also be allowed with the benefit of hindsight to take advantage of the special relief for involuntarily liquidated inventories — a relief which, with one or two possible exceptions, the stores on Lifo continuously since 1941 have not claimed. Once again difficult questions of equality of treatment are raised.

DISCUSSION OF RETAIL INVENTORY METHOD

Description of Method

The general nature of the retail inventory method has already been stated. This section supplements the general statement with a step-by-step explanation of the computations required. For each department of merchandise (or classification within a department) the inventory at the beginning of the period is entered at both cost and retail figures — as illustrated by Table 20. All purchases during the year likewise are entered at both cost and retail, and transportation charges

TABLE 20. ILLUSTRATION OF COMPUTATIONS UNDER RETAIL INVENTORY METHOD

	Cost		*Retail*
1. Beginning Inventory	$12,500		$18,750
2. Purchases, less returns to vendors	2,961		4,640
3. Freight, express, and cartage, inward	30		
4. Additional markups, less additional markup cancellations			8
5. Transfers out	(15)		(22)
6. Total of inventory plus additions (sum of lines 1–5)	$15,476		$23,376
7. Markon percentage		33.8%	
8. Net sales			$ 4,000
9. Markdowns, less markdown cancellations			80
10. Retail deductions (sum of lines 8 and 9)			$ 4,080
11. Resultant retail inventory (retail inventory on line 6 minus line 10)			$19,296
12. Calculation of cost percentage:			
a) Total %		100.0%	
b) % of markon		33.8	
c) % of cost		66.2%	
13. Resultant inventory at lower of cost or market (line 12-c applied to line 11)	$12,774		

SOURCE: Adapted from National Retail Dry Goods Association, Controllers' Congress, *The Retail Inventory Method in Practical Operation* (New York, 1946 Edition), p. 17.

are added to the cost figures. The retail figure is increased by any net additional markups (additional markups less additional markup cancellations) on inventory goods, and appropriate adjustments are made for any interdepartmental transfers of goods. The sum of the above data (line 6 in Table 20) represents the total cost and retail figures for all goods handled during the period. The difference between the total retail and total cost figures is the amount of markup; the percentage of markup (or markon percentage) is determined by dividing the amount of markup by the retail figure for total merchandise handled. To arrive at a figure for the ending inventory expressed in retail prices the sum of net sales and net markdowns (markdowns less markdown cancellations) is subtracted from the retail figure for total merchandise handled. If a physical inventory is taken, as is customary at the end of each year, any discrepancy between the retail book inventory and the actual physical inventory represents a retail stock shortage or overage, and an appropriate adjustment is made therefor. The retail inventory as adjusted is then reduced to an approximate lower-of-cost-or-market valuation by multiplying it by the cost percentage (otherwise known as the complement of the percentage of markup, i.e., 100% less the percentage of markup).

Definition of Terms

For nonretail readers the technical terms contained in the preceding paragraph are now defined.

Percentage of markup (also referred to as the markon percentage) — The percentage of markup is the difference between the cost of all merchandise handled in the given accounting period and the computed retail value of the same merchandise expressed as a percentage of the latter figure. The percentage is computed after giving effect to purchase returns, deductions, allowances from vendors, additional markups, markup cancellations, and transportation costs.

Markups and markup cancellations — A markup (or additional markup) consists of an upward revision of an originally marked retail price. Retail price increases may be justified because of (1) higher market prices and (2) errors in pricing discovered after invoices have been entered. When an error in pricing requiring a downward adjustment is discovered, a markup cancellation is recorded. Downward adjustments due to competitive prices, special promotions, or decreases in retail value, without compensating allowance from the vendor, are markdowns and must not be confused with markup cancellations.

Markdowns and markdown cancellations — Markdowns are price reductions below original retail prices exclusive of markup cancellations referred to above. The more common reasons for markdowns are:

i. Promotional purchase remainders
ii. Slow moving or inactive stocks
iii. Special sales from stock
iv. Price adjustments
v. Broken assortments, remnants, discontinued lines, and damaged merchandise
vi. Allowances to customers

Markdown cancellations are used to restore previously marked down merchandise to higher, though not necessarily to original, prices. The most frequent use of a markdown cancellation is to restore to the original price the unsold portion of merchandise previously marked down for a special sale. A markdown cancellation must not be confused with additional markups. An additional markup, to repeat, is used to record an increase in price from *original* retail. The retail prices used at the close of the year in computing inventory are regarded as original retail for the ensuing year. Thus, restoration of prices in a year subsequent to the one in which the reductions have been taken should be regarded as additional markups, not as markdown cancellations.[9]

Treatment of Markdowns in Computation of Percentage of Markup

A basic principle of the retail method is that additional markups, less markup cancellations, are allowed to affect the markup percentage, whereas markdowns (and consequently markdown cancellations) have no effect whatsoever on the markup percentage. At first sight, it may appear unreasonable that markdowns which obviously affect the actual maintained markup, should not be allowed to affect the cost percentage used in arriving at the lower-of-cost-or-market valuation of inventory. This distinction in treatment, however, is necessary if the retail method is to result in an inventory valuation on an approximate lower-of-cost-or-market basis. If markdowns were allowed to affect the percentage of markup, this percentage would be reduced. The complement of the percentage of markup, that is, the percentage applied to the retail inventory to obtain the lower-of-cost-or-market inventory valuation, would be correspondingly increased. Consequently, if markdowns were taken into account in computing the percentage of markup, a cost rather than a lower-of-cost-or-market valuation would result.

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[9] These definitions have been summarized from National Retail Dry Goods Association, Controllers' Congress, *The Retail Inventory Method in Practical Operation* (New York, 1946 Edition), pp. 5-7.

To illustrate, assume that an inventory good is purchased at $20 and marked for sale at $30. Prices fall, however, and the good is marked down to $25 at retail. The percentage of markup, computed *after* the markdown, would be 20% ($5 divided by $25). If the percentage of markup were computed in this manner, the inventory would be valued at 80% of the $25 retail inventory, or at $20, the original cost price. The percentage of markup, as ordinarily computed without reference to the markdown, is 33⅓% ($10 divided by $30). On this basis, the inventory would be valued at 66⅔% of $25, or $16.67. Thus, unless the percentage of markup is computed without reference to markdowns, a cost valuation will result rather than the desired approximation of a lower-of-cost-or-market valuation. Under the usual procedure, it should be noted, a given percentage retail reduction always causes an equal percentage reduction in cost valuations. Since many retail reductions do not reflect general declines in market prices the "cost" valuation under the retail method will, on this account, tend to be less than the actual cost in a strict sense.

Averaging Errors Inherent in Retail Method

Perhaps the most frequent objection to the retail method is that it is an averaging method and contains inherent inaccuracies. Such inaccuracies enter because of the averaging process by which the percentage of markup is computed. This percentage expresses the relationship between the cost value of all merchandise handled in the given accounting period (beginning inventory plus purchases during the period) and the total retail value of the same merchandise. Naturally, some goods entering these totals have relatively high markups and others relatively low markups. If the percentage markup of the inventory goods on hand at the end of the year is to be accurate, the relative proportion of goods bearing a high markup to goods bearing a low markup must be the same in the merchandise comprising the ending inventory as in the total merchandise handled.

Compared with the actual cost of goods on hand in the closing inventory, the retail method will undervalue the ending inventory if this inventory includes a larger proportion of low markup (high cost) goods than the average of all goods handled in the given accounting period. If the ending inventory is undervalued, profit will be understated, other considerations remaining equal. Similarly, the retail method will overvalue the ending inventory if this inventory includes a larger proportion of high markup (low cost) goods than the average of all goods handled in the given accounting period. In this case, the retail method will tend to overstate profits, relative to the cost of the actual goods comprising the closing inventory.

The latter alternative is generally recognized to be more probable because the turnover of low markup merchandise is usually more rapid than that of high markup merchandise. Consequently, low markup goods will be weighted more heavily in the average of total goods handled than in the ending inventory. The percentage of markup will therefore be too low, the ending inventory will be overvalued, and profits will tend to be overstated over the total period for which the retail method is used. If the method is used consistently, however, a similar bias will appear after the initial year in both the beginning and ending inventories. Also, the practice of classifying inventories by departmental groups in the application of the retail method tends to minimize the importance of variations in markups. Consequently, the profits reported annually should not be seriously distorted after the retail method has been in operation for several years.

Extent to Which Retail Method Results in Inventory Profits

The retail method may be employed in the customary manner here described or it may be adapted to Lifo, as explained below. In this sense the method is basically a means of cost determination rather than of the allocation of costs to different accounting periods. The traditional retail method reflects price fluctuations in inventory values to roughly the same degree as the lower-of-(average-) cost-or-market method applied to manufacturing inventories.

Under the retail method inventories are first valued at current retail prices as of the end of the year. This valuation reflects the full extent of any changes in retail prices. But the complement of the percentage of markup, used in the reduction of retail inventories to a cost basis, is based on all goods handled during the year. When the retail inventory is multiplied by this percentage, all goods handled during the year have a bearing on the resulting "cost" valuation. Retailers claim that this procedure results approximately in an average cost valuation. For all practical purposes it may be assumed that under the retail method price fluctuations are reflected in inventory values to about the same degree as under variants of the average-cost method used by companies not on the retail method.

LIFO ADAPTATION OF RETAIL METHOD

Procedures Followed

The procedures used in applying Lifo to the retail inventory method are illustrated in Table 21; two situations are presented, one in which physical inventories have increased (Department No. 1) and one in which they have decreased (Department No. 2). For both departments the value of the beginning inventory at cost and at retail will be available from the accounts of the preceding year, as will the percentage of markup used in deriving the cost valuation from the retail

TABLE 21. ILLUSTRATION OF APPLICATION OF LIFO TO RETAIL INVENTORY METHOD

	Department No. 1				*Department No. 2*			
	Percentage Price Change	*Cost Valuation*	*Retail Valuation*	*Percentage of Markup*	*Percentage Price Change*	*Cost Valuation*	*Retail Valuation*	*Percentage of Markup*
1. Retail prices 1/31/42 as % of 1/31/41 prices	115.27%				110.95%			
2. Inventory, 1/31/41, usual method		$26,479	$41,568	36.3%		$5,397	$9,535	43.4%
3. Departmental percentage of markup								
(a) Cumulative markup on purchases for year ending 1/31/42				37.6				43.5
(b) Cumulative markup on 1/31/41 inv. & purchases for year ending 1/31/42				37.3				43.5
4. Inventory, 1/31/42, customary method		47,191	75,265	37.3		4,949	8,759	43.5
5. Inventory, 1/31/42, on last-in first-out basis:								
(a) Ending inventory at 1/31/42 prices			75,265				8,759	
(b) Ending inventory at 1/31/41 prices			65,295			4,469*	7,895	
(c) Deduct beginning inventory		26,479	41,568				9,535	
(d) Phy. increment in inv. at 1/31/41 prices			23,727				. . .	
(e) Phy. increment in inv. at 1/31/42 prices			27,350				. . .	
(f) Cost valuation of physical increment in inv. at 1/31/42 prices		17,066						
(g) Inventory, 1/31/42, on Lifo		43,545				4,469		

*If January 31, 1942, inventory at January 31, 1941, prices is smaller than inventory at January 31, 1941, inventory is reduced to cost on basis of departmental percentage of markup as of January 31, 1941. The result thus obtained is the Lifo inventory.

SOURCE: Adapted from example prepared by American Retail Federation.

valuation.[10] In the first year in which Lifo is used these data will be the same as for the closing inventory of the preceding year on the traditional retail method, *except* that adjustments (as explained below) are required to place the closing inventory of the preceding year and the beginning Lifo inventory on a cost rather than a lower-of-cost-or-market basis. (These adjustments are not shown in Table 21.)

The first step in computing the ending Lifo inventory is to determine the inventory at retail by departments. This inventory is then converted to beginning-of-year prices by dividing the inventory, valued at end-of-year prices, by the ratio expressing the percentage price change during the year.[11] The beginning inventory is then subtracted from the ending inventory, adjusted to beginning-of-year prices at retail, to obtain a measurement of the physical change in the inventory held when the beginning and ending inventories are stated at the same price level.

The next step depends on whether the ending or beginning inventory is larger. If the ending physical inventory, i.e., the ending inventory valued at beginning-of-year prices, exceeds the beginning inventory as in Department No. 1 of Table 21 — the excess of the former over the latter is reconverted to end-of-year prices.[12] The physical increment to the ending inventory now stated at retail and at end-of-year prices, is then reduced to a cost basis by multiplying this increment by the complement of the cumulative percentage of markup on purchases during the year.[13] The total Lifo cost valuation is equal to the sum of the cost value of the beginning inventory plus the cost valuation of the physical increment to the beginning inventory, computed in the manner here described.

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[10] These data are shown in row (2) of Table 21. The word *cost* is used in this paragraph and the following several paragraphs to distinguish the inventory reduced to approximate cost by multiplying it by the complement of the percentage of markup from the same inventory at retail. Special problems involved in the computation of the percentage of markup under the elective method are discussed below.

[11] The result is stated in row (5b) of Table 21 and is obtained by dividing row (5a) by row (1).

[12] The result is stated in row (5e) and is obtained by multiplying row (5d) by row (1).

[13] The result is stated in row (5f) and is obtained by multiplying row (5e) by 100 per cent minus row (3a). It should be noted that the percentage of markup used is based on purchases during the year rather than on the sum of the beginning inventory plus purchases. The latter practice is commonly followed in the usual application of the retail method. The use of purchases alone in computing the percentage of markup conforms more nearly to the Lifo requirement that increments of physical inventory be valued at current-year prices.

If the ending physical inventory is smaller than the beginning physical inventory — as in Department No. 2 — the ending inventory, stated at beginning-of-year prices, is reduced to a cost basis by multiplying it by the complement of the percentage of markup used in obtaining the cost value of the beginning inventory. The Lifo valuation is the result thus obtained.[14] Since the ending physical inventory is smaller than the beginning physical inventory, the entire ending inventory can be valued at beginning-of-year prices with the use of a percentage of markup computed from beginning inventory data.

The preceding paragraph assumes that the entire initial inventory had been built up in a single year. The procedure is the same in principle, although more complicated in mechanics, if an inventory which has been built up over a period of years is partially liquidated. The mechanical complications arise from the Lifo requirement that the earliest goods acquired shall be regarded as comprising the closing inventory. This requirement can be met only by preserving the identity of each annual increment to the inventory. In the event of a partial inventory liquidation it will then be possible to charge goods out of the inventory in the inverse order of their acquisition. The substance of the problem of Lifo inventory layers for firms on the retail method is substantially the same as that for manufacturing companies on Lifo, but the arithmetical computations are considerably different.[15]

Use of Price Indexes

Three different approaches have been made to the use of price indexes in applying Lifo to the retail method: (1) a privately constructed national index was used in the initial returns of almost all the department stores filing on Lifo;

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[14] The result is stated in row (5b) under the heading Department No. 2, cost valuation, and is obtained by multiplying row (5b), retail valuation, by 100% minus the percentage of markup shown in row (2).

[15] For an illustration of the arithmetical computations needed to satisfy this requirement see Mimeograph 6244.

(2) the Hutzler decision called for an individual-store index based exclusively on the experience of the Hutzler company; and (3) subsequent to the Hutzler decision the Treasury had a special government index prepared; this index is now used by almost (if not all) stores on Lifo. In view of the critical significance of the price index employed to the workability of the method, the major problems encountered in each of these approaches will be examined.

When the department stores first decided to shift to Lifo, an arrangement was made for the National Industrial Conference Board to construct a specially prepared index designed to measure nationwide changes in retail prices. This index with departmental breakdowns was computed for the year ending January 31, 1942, and thereafter at semiannual intervals until July 31, 1947. Until the special government indexes became available, the Conference Board index was used by nearly all stores filing their annual reports and tax returns on a Lifo basis; a few stores, however, computed indexes for their own use from their own records.

Since the Conference Board index is no longer in use, the technical problems of its construction need not be examined. Although subject to numerous qualifications from a technical standpoint, the Conference Board index, in comparison with other price indexes, probably was reasonably satisfactory and well adapted to its purpose.

Entirely apart from technical considerations, the authorization of the index for tax purposes would have raised many problems of broader scope for the Treasury. If privately constructed indexes had been approved for use by one group of taxpayers, it would have been neither expedient nor desirable in principle to bar other groups from the same privilege. The Treasury could hardly have approved the Conference Board index without extending to other taxpayers the right to use similar indexes. Widespread use of privately constructed price indexes by taxpayers in various industries, and perhaps even by individual taxpayers, would have presented the Treasury with almost unmanageable administrative problems.

Questions such as the following would immediately have risen: How should taxpayers be grouped into industries for the construction of index numbers? Should large numbers of taxpayers be allowed to use the same index or should the use of a common index be restricted to very narrowly classified industrial categories? Would the Bureau of Internal Revenue be able to supervise the construction and use of the indexes in order to protect the government against manipulation of price indexes for purposes of tax avoidance? What adjustments would be made if the computation of a privately constructed index were discontinued? These and many other similar issues involving complex questions of statistical theory and practice would have inevitably created administrative problems of major difficulty.

Potential difficulties such as these undoubtedly were responsible in large part for the Treasury opposition to the use of the Conference Board index. In addition, the Treasury's unwillingness to recognize the index was based on the refusal of the Conference Board to permit the Treasury to conduct a complete examination of the procedures used in constructing the index. The Conference Board obtained its price and inventory date from individual stores on a pledge of confidence and considered itself obligated to refuse Treasury agents access to the basic data used in computing the index.

The validity of the Conference Board index was a major point of controversy in the Hutzler case, although the Hutzler company did not restrict its claim for relief to computations employing this index. When the opposition of the Treasury to the Conference Board index was made clear, the Court asked the Treasury representatives to indicate the index which they regarded as preferable. The reply was that the Treasury considered the entire procedure involving the use of price indexes improper and hence did not regard any index as satisfactory. The court continued to press the Treasury attorneys on the point, however, finally asking them to name an index which was "less objectionable than others." Under this pressure the reply was that, for purposes of the Hutzler case, an index computed directly from the Hutzler company's price and inventory data would be least objectionable; but this statement of preference was specifically limited to the case at trial. Inasmuch as the Hutzler company had expressed its willingness to adopt any reasonable index, the Court ordered that the Treasury's preference be followed in this respect.

While the Hutzler decision settled the general principle of the use of price indexes in applying Lifo to retail trade, it did not settle the matter of the index to be used. Individual-store indexes, as used in the Hutzler case, undoubtedly represent the most precise approach to the problem. But the multiplicity of indexes that would be required to administer the method would rapidly create an impossible situation for the Bureau of Internal Revenue. The Bureau simply is not staffed to undertake an auditing job of this nature and magnitude.

The Opper opinion, perhaps in recognition of this fact, made no attempt to prescribe the type of index to be used by taxpayers generally, but rather stated:

> The adoption of appropriate details to accomplish the general purpose of applying the Lifo method to retail merchants could well be the subject of an administrative regulation. It might then be that any reasonable and practical method directed by the Commissioner would be mandatory to the exclusion of others not thought by him to be adequate or authoritative.

After the Hutzler decision was handed down, the Treasury had two possible courses of action: it could appeal the case or proceed to issue regulations designating a generally acceptable method of applying Lifo to retail trade. The prospects of obtaining a reversal of the Hutzler decision were not good, since the issues involved were largely questions of fact rather than of law. Moreover, the Treasury officials recognized that there was some merit to the retailers' claim that — whatever the legal and accounting technicalities might be — they were in essence requesting a treatment similar to that accorded taxpayers on Lifo in other industries.

The Treasury, therefore, inaugurated an investigation of the feasibility of constructing a government price index that would be suitable for the purpose. With the cooperation of representatives of the U. S. Bureau of Labor Statistics and the American Retail Federation a plan was eventually worked out which called for the computation of an index of retail prices by the Bureau of Labor Statistics. A Treasury Decision, issued on March 4, 1948, brought the regulations into conformity with the Hutzler decision by explicitly authorizing the use of this B.L.S. index, ruling out the Conference Board index, and leaving open the possibility of using individual store indexes.[16] Most taxpayers who initially used the Conference Board index presumably have filed amended returns to adopt the B.L.S. index and to make the other adjustments (discussed below) required by T. D. 5605.

The essential characteristics of the specially prepared B.L.S. index can be summarized as follows:

1. A single index applies to the entire nation; no allowance is made for varying price movements in different sections of the country or in different sizes or types of stores.
2. The index is presented for a store total, for ten major groups of departments, and for two special combinations of groups, one covering durable goods and the other nondurable goods. A group index entitled "piece goods, domestics, and draperies," for instance, is used to represent the seven departments falling under this heading.[17] The Treasury has indicated

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[16] T. D. 5605, op. cit., amending Regulations iii, Sec. 29.22(d)-1. The relevant portion of the Treasury Decision reads:

> If a taxpayer using the retail method of pricing inventories . . . elects to use in connection therewith the elective inventory method authorized by section 22(d) of the Code, the apparent cost of the goods on hand at the end of the year . . . shall be adjusted to the extent of price changes therein taking place subsequent to the close of the preceding taxable year. The amount of any apparent inventory increase or decrease to be eliminated in this adjustment shall be determined by reference to acceptable price indices established to the satisfaction of the Commissioner. Price indices prepared by the United States Bureau of Labor Statistics which are applicable to the goods in question will be considered acceptable to the Commissioner. Price indices which are based upon inadequate records, or which are not subject to complete and detailed audit within the Bureau, will not be approved.

[17] The index for the store total includes all departments, with certain limited exceptions, whether or not they are included in the group indexes. Two special combinations of groups have also been prepared — one is a total of piece goods, apparel and notions, and the other is a total of furniture, home furnishings, and appliances. The indexes are based on retail prices collected in 34 large cities and weighted by inventory data for a small number of department stores. For a more detailed description of the method of computing the index see U. S. Department of Labor Press Release, February 3, 1948, entitled *Department Store Inventory Price Indexes.*

that in using the group indexes a department-store taxpayer will be expected to apply the appropriate group index to each department separately. If none of the group indexes fits a department, the store total index or one of the two special combinations of groups should be used. This rule is of significance in determining the extent to which there are inventory increments or decrements and also because of its bearing on the potential errors involved in the use of the index.

3. The B.L.S. indexes have been computed retroactively to January 1, 1941, on a semiannual basis and will be issued as of each January 15 and July 15 in the future. The Treasury has indicated that indexes as of the fifteenth of a month will be deemed to be representative of prices at either the beginning or end of the month in question.

In the final analysis, the case for or against a nationwide index, such as that prepared by the B.L.S., must rest on the degree of precision with which this index reflects the actual experience of the firms which employ it. If the other difficulties in connection with Lifo can be overcome, moderate variations from theoretical accuracy because of the use of a price index should not constitute a conclusive objection to the method. But if errors of large and indeterminate amounts are caused by an industry index, the wisdom of authorizing such an index as a permanent part of the tax structure is highly questionable.

The task of estimating the errors likely to result from an industry index is extremely difficult and cannot be undertaken in any elaborate manner in this study. The scanty available information, however, points to at least the possibility that the errors may be substantial.

One way of testing the B.L.S. index is to compare it with the Conference Board index. As Table 22 indicates, a comparison of the store totals for the two indexes shows a substantial variation between them. In all but the first year the B.L.S. index shows a larger price rise than the Conference Board index; in three of the six years for which the comparison can be made the differences are substantial. This comparison does not, of course, demonstrate that the B.L.S. index is in error, but it does at least raise serious questions as to the precision of the index approach.

TABLE 22. COMPARISON OF PRICE INDEXES PREPARED BY U. S. BUREAU OF LABOR STATISTICS AND NATIONAL INDUSTRIAL CONFERENCE BOARD, 1941–1948

(Year ended January 31)	*Index as % of January 31, 1941 prices*		*Annual % Increase in Index*	
	NICB Index	*BLS Index*	*NICB Index*	*BLS Index*
1941	100.0	100.0	...	...
1942	115.8	114.8	15.8	14.8
1943	119.9	124.9	3.5	8.8
1944	125.0	131.5	4.2	5.3
1945	128.2	138.9	2.6	5.6
1946	130.0	145.7	1.4	4.9
1947	145.5	163.6	12.0	12.3
1948	...	180.5	...	10.3

SOURCE: U. S. Department of Labor Releases on *Department Store Inventory Price Indexes*, February 3, 1948, and March 3, 1948; and National Industrial Conference Board, *Indexes of Change in Retail Prices of Department Stores from January 31, 1946, through January 31, 1947* (mimeograph, April 9, 1947).

As a side light it is interesting to note that when the government price index is used tax liabilities will be substantially lower during the period 1941-1947 than when the Conference Board index is used.

Another approach to the problem of estimating the potential magnitude of the errors involved in the index approach is to compare the group indexes, as computed by the Bureau of Labor Statistics, with the departmental indexes computed by the Conference Board. Table 23 shows this comparison for the "piece goods, domestics, and draperies" group; the same general impression would be given by data for other departments although the relative variations in the two sets of indexes would be different from department to department. Even a casual examination of Table 23 is adequate to indicate the wide range of price movements within this group and the upward bias of the B.L.S. index as compared with the Conference Board index. Clearly, the procedure of applying the B.L.S. group index separately to each of the departments shown in Table 23 will introduce significant errors, not all of which can be expected to cancel out.

The above comparisons take no account of regional variations in price movements. If these variations are large, the reliability of an industry-wide index will be seriously impaired.

TABLE 23. FURTHER COMPARISON OF B.L.S. AND N.I.C.B. PRICE INDEXES, 1941-1947

Index	*Years Ended January 31* *1941*	*1942*	*1943*	*1944*	*1945*	*1946*	*1947*
U.S.B.L.S. Piece Goods, Domestics, and Draperies	100	120	137	144	151	167	196
N.I.C.B. Departmental Indexes							
Silks, Velvets, Synthetics	100	120	123	124	125	125	143
Woolen Dress Goods	100	122	133	138	140	144	150
Wash Goods and Linings	100	134	145	146	148	151	200
Linens incl. Towels other than Turkish	100	123	130	134	137	142	159
Domestics incl. Turkish Towels	100	131	140	141	142	142	195
Blankets, Comfortables, Spreads	100	119	127	133	135	136	142
Draperies and Curtains	100	117	120	122	124	125	136

SOURCES: *U. S. Department of Labor Release on Department Store Inventory Price Indexes*, February 3, 1948, and *Indexes of Change in Retail Prices of Department Stores* prepared by National Industrial Conference Board.

The problem was evidently investigated in the Hutzler case, for Judge Opper reports the following information in his "findings of fact":

> National and area index figures and those for other individual cities differed from those for the city of Baltimore. A comparison of the retail prices of clothing and house furnishings — January, 1942, relative to January, 1941 — reflected the following extreme differences among cities:

Clothing

Low (Kansas City)	112.7
High (Houston)	121.8
Baltimore	115.5
United States	115.3

House Furnishings

Low (Savannah)	113.1
High (Cincinnati)	123.8
Baltimore	121.7
United States	118.1[18]

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[18] 8 Tax Court 22-23 (1947). The price data referred to are consumers' retail price indexes computed by the U. S. Bureau of Labor Statistics.

In view of these "findings of fact" it is rather surprising that Judge Opper's opinion never even raises the question of the potential margins of error introduced by the price index approach. In numerous other instances the Tax Court has insisted on a much smaller degree of uncertainty before it would recognize procedures for tax purposes.

This discussion of the potential margin of error in the price index approach has necessarily been purely illustrative in character; no definitive judgments can be based upon it. The conclusion does seem warranted, however, that at best the use of any national price index will give results of a merely approximate character. Nevertheless, if the objectives of Lifo are accepted, the use of the B.L.S. indexes probably will give a figure for taxable income considerably closer to that theoretically desired than will be obtained by the traditional retail method. But more than this can hardly be claimed.

Procedure Necessary to Satisfy Cost Requirement of Lifo

The usual retail method, in which the percentage of markup is not reduced by net markdowns, is generally recognized to approximate a lower-of-cost-or-market valuation. As indicated above, however, a cost valuation would be obtained if net markdowns were allowed to reduce the percentage of markup.

The usual procedure, because it approximates a lower-of-cost-or-market valuation, does not meet the requirement of the Internal Revenue Code that goods on Lifo be inventoried at cost. The Treasury has therefore ruled that:

> A taxpayer using the elective inventory method in conjunction with retail computations must adjust retail selling prices for mark-downs as well as mark-ups, in order that there may be reflected the approximate cost of the goods on hand at the end of the year, regardless of market values.[19]

The adjustment must be made for all years in which the taxpayer files his tax returns on Lifo. This requirement includes the opening inventory of the first year on Lifo and hence the closing inventory of the preceding year, since these inventories must be identical. The effect of the adjustment will be to increase profits in the year preceding the adoption of Lifo and to cause higher values to be placed on all succeeding inventories than would be reported with the customary method of computing the percentage of markup.

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[19] T. D. 5605, op. cit.

The precise meaning of the new Treasury requirement with respect to markdowns is uncertain. Total retail reductions include markdowns in the limited sense of goods marked down for general sale at reduced prices and also such items as employee discounts, discounts granted to special classes of customers, such as clergymen and institutions, and inventory shortages. The Treasury rulings do not prescribe which of these items are included in its use of the word, markdown, in the preceding quotation. The objective of the Treasury requirement, however, would seem to indicate that a reduction in the percentage of markup as ordinarily computed should be required only for those markdowns which reflect price reductions on goods offered for general sale.

As a matter of fact, in terms of pure logic not even all markdowns reflecting reductions in retail prices to general customers should be taken into account in arriving at a cost valuation under the usual Treasury definitions. Even taxpayers using a straight cost procedure are allowed to write down the value of damaged and otherwise imperfect goods. The Treasury Regulations in this connection provide that:

> Any goods in an inventory which are unsalable at normal prices or unusable in the normal way because of damage, imperfections, shop wear, changes of style, odd or broken lots, or other similar causes, including secondhand goods taken in exchange, should be valued at bona fide selling prices less direct cost of disposition. . . .[20]

In most years department-store markdowns for reasons falling in this general category represent a large proportion of their total markdowns; in theory such markdowns should be recognized as reducing inventory values even though the taxpayers are required to apply Lifo on a straight cost basis. It should be noted, however, that the retail method marks down damaged and obsolete goods somewhat below "selling prices less direct cost of disposition." While a Treasury ruling limiting markdowns of damaged goods to selling prices less direct costs of disposition would be entirely consistent with existing regulations, the attempt to differentiate among markdowns on this basis would create severe and perhaps unmanageable administrative problems. If this differentiation could not be made on a practicable basis, the Treasury would be obligated to rule, as it has ruled, that all markdowns reflecting price reductions taken by taxpayers on Lifo be allowed to reduce the percentage of markup.

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[20] Regulations iii, Sec. 29.22(c)-2.

CONCLUSION

The use of Lifo by department stores represents the ultimate extension of the Lifo principle. It abandons all efforts to maintain the identity of specific inventory goods and substitutes an attempt to eliminate the element of price inflation from heterogeneous groups of inventories by the use of nationwide price indexes.

A number of leading retailers adopted Lifo in 1941 mainly to achieve the large tax savings which the method appeared to offer. The legality of the novel procedures used by the retailers was challenged by the Treasury; the issue was not settled until 1947 when the Tax Court ruled in favor of the retailers, and the Treasury decided not to appeal this ruling.

This delay in the clarification of the legality of the price-index application of the Lifo method has raised difficult problems of tax equity, most of which still are unresolved. A number of retailers failed to elect Lifo because of the Treasury opposition to the method. Some of them apparently received the impression that the Treasury would permit them to adopt Lifo retroactively to 1941 if the legality of the method should be subsequently established.

The strength of the retailers' claim for a retroactive election depends largely on the precise nature of their negotiations with the Bureau, a point on which we do not have detailed information. While some taxpayers may have a strong claim for relief, the practical problem of how to grant this relief presents imposing and perhaps insoluble difficulties. Of necessity, a line must be drawn that will exclude some taxpayers who will believe that they have been treated arbitrarily and unfairly. The issue is not limited to taxpayers on the retail method since many other taxpayers such as manufacturers with heterogeneous inventories were discouraged from electing Lifo in the early war years by the administrative policies of the Treasury and by the narrow interpretation of Lifo by most accountants.

In general, the best solution to the problem would appear to be to restrict retroactive elections to those taxpayers who can prove that their failure to adopt Lifo was directly attributable to commitments made by the Bureau. If the alternative policy of permitting a widespread retroactive election were followed, it would be impossible to draw any defensible boundary short of a completely general election. Such an election would place a tremendous administrative burden on the Treasury and would involve huge tax refunds, neither of which would be in the public interest.

CHAPTER XI

Comparison of Normal-Stock and Inventory-Reserve Methods with Lifo

MOST of the discussion to this point has treated the Lifo method as broadly typical of a family of methods which also includes the normal-stock (or base-stock) method and various inventory-reserve procedures. In this chapter these Lifo relatives, if they may be so designated, are singled out for specific attention. The methods are briefly described and then compared with each other and with Lifo. Special attention is paid to two points discussed in general terms in Chapter VI: the basis of distinction between the "fixed asset" and "excess" components of inventories, and the extent to which revenues and costs are computed in terms of the same price levels.

THE NORMAL-STOCK METHOD

An excellent brief description of the normal-stock method has been presented by Mr. David R. Anderson in his recent volume, *Practical Controllership*. Mr. Anderson writes:

> . . . In the normal-stock method of valuation . . . inventories [are divided] into two parts: the true reservoir, which represents the normal stock, i.e., the stocks required to maintain a continuous flow of shipments under normal conditions, and the marginal inventories, which are accumulated and liquidated as the rates of flow of the incoming and outgoing streams vary with changes in operating conditions. The usual practice is to draw the line between the true reservoir and the marginal inventories at approximately the historical minimum inventory level, leaving out of consideration any instances where the level may have dropped abnormally low because of temporarily extreme conditions. The reservoir inventories are then carried at a fixed cost, while the marginal inventories are valued at

> cost on the first-in, first-out basis, ignoring the existence of the reservoir stocks, or at market, whichever is lower.
>
> When the normal-stock method of valuation is first adopted in a business, it is customary, if feasible, to write down the value of the reservoir inventories to a figure at or near the historical low, with a charge to the surplus account or to an extraordinary profit and loss adjustment account. Obviously, there is a large element of judgment in the determination of the reservoir level, and it may be necessary to change it if the business shows significant permanent growth or contraction. Such changes will call for additional charges or credits to the same adjustment account, the amount of the adjustment in each case depending on the difference between the price level at the time the adjustment is made and the fixed cost at which the reservoir inventories are carried. . . .
>
> Occasionally it may happen that the inventories of some item drop temporarily below the reservoir level, owing to unusual customer demand, shortages of supply, or other factors. In such a case no change is made in the level, but the inventories drawn from the reservoir are charged to cost of sales at their current market value, and the excess of that value over the fixed cost is carried to a special "replacement reserve" account. Later, when the reservoir is refilled, the goods used to restore it to its designated level are charged into the inventories at the fixed cost, and the excess of the purchase cost over the fixed cost is charged against the replacement reserve. Any balance in the reserve due to fluctuations in replacement costs during the period when the reserve is below normal is carried to profit and loss as an extraordinary cost adjustment.[1]

At least half a dozen prominent companies, including the National Lead Company, the Corn Products Refining Company, the Phelps Dodge Corporation, the Endicott Johnson Corporation, and the Bridgeport Brass Company, use the normal-stock method despite its continued unavailability for tax purposes. Other companies which once used the normal-stock or related methods shifted to Lifo after the 1938 and 1939 enabling legislation was passed. Some of the latter companies combine, in a sense, the normal-stock and Lifo methods by continuing to carry inventory reserves (usually on the right side of the balance sheet) against their Lifo inventories, thereby reducing them to still lower normal-stock valuations.

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[1] D. R. Anderson, *Practical Controllership* (Chicago, Richard D. Irwin, Inc., 1947), pp. 361-362.

We have not made a systematic investigation of the reasons why companies still using the normal-stock method have refrained from adopting Lifo, but such evidence as we have gathered indicates that these reasons are not greatly different from those summarized in Chapter IV for other companies. There is some evidence to indicate that, because of satisfaction with the operation of the normal-stock method, Lifo was not seriously considered by several normal-stock companies. Other reasons mentioned in one or more interviews were uncertainty as to the long-run tax benefits of Lifo, the ability to minimize inventory profits and losses in part by hedging, and (less clearly) the unwillingness to risk the loss for tax purposes of favorable inventory procedures in current use.

So far as income accounting is concerned, the description presented by Mr. Anderson appears to represent a standardized procedure of companies on the normal-stock method, but considerable variation occurs in the presentation of balance-sheet information. To illustrate, the National Lead Company and the Endicott Johnson Corporation state their inventories at a full "lower-of-cost-or-market" valuation, and show on the liability side of the balance sheet a reserve reducing their inventories to a normal-stock valuation. The normal quantities of these inventories and the fixed prices at which they are valued are also reported by the National Lead Company and the fixed prices (but not quantities) by the Endicott Johnson Corporation. In contrast, the Corn Products Refining Company states its reserve for the reduction of normal inventories to fixed prices as an offset to inventories on the asset side of the balance sheet and does not disclose either the normal quantities or the fixed prices at which its normal-stock inventories are carried. While both these procedures have the merit of disclosing current as well as "normal" inventory valuations, they show differing amounts of total assets, current assets, net working capital, and a different current ratio — provided that the reported data are used without adjustment. Still a different procedure is followed by the Phelps Dodge Corporation which reports its normal-stock inventories at their "normal" valuation without disclosing any further information.

In connection with income reporting, one aspect of the normal-stock method may have a substantial distorting effect on income in periods of high corporate taxes. The method as ordinarily operated understates net income after taxes in periods of rising prices and overstates it in periods of falling prices. This happens because (1) fluctuations in the value of normal-stock inventories are completely eliminated from income, and (2) the provision for income taxes is made against a taxable income which includes the inventory profits and losses on normal-stock inventories. The Endicott Johnson Corporation, alone among the normal-stock companies whose reports we have examined, recognizes this fact by stating in its 1948 report:

> Because the normal base stock method of inventory is not recognized for federal tax purposes, the net profit for the year has been charged, in addition to the increase in provision, [to reduce inventories to normal-stock values] with $448,000 for federal taxes on income thereon. If in the future the reserve is used, the resultant credit to Profit and Loss will not be subject to federal income taxes. If the reserve were now reduced by taxes at the current rate (38%) the amount would be reduced to $11,389,597 [from $18,370,317].[2]

This combination of circumstances poses a real dilemma for normal-stock companies. If the inventory reserve is set up on a gross basis to reduce inventories to their normal-stock valuation, income will be understated and the principles set forth in *Accounting Research Bulletin, No. 23* violated. But if income is properly stated, the reserve set up against inventories will not be sufficient to reduce these inventories to their normal-stock valuation. So far as is revealed in their reports, the normal-stock companies which we have examined have chosen to resolve this dilemma by showing the inventory reserve at its full amount even though the necessary corollary to this policy is a misstatement of income.

[2] *Annual Report,* Year Ended November 30, 1948, Note 1 to Financial Statements.

We turn now to a comparison of the normal-stock and Lifo methods, taking up first the way in which the two methods distinguish between reservoir and marginal inventories — to continue Mr. Anderson's apt terminology. Under the normal-stock method management is free to determine the size of its reservoir inventories, but a level once chosen ordinarily is changed only infrequently. The reservoir inventories usually are set at a relatively low level so that large marginal inventories, valued on a Fifo (or related) basis, are often on hand.

Lifo, in effect, defines reservoir inventories as the amount included in both the beginning and ending inventories.[3] Such inventories are held at a fixed valuation and inventory profits and losses on them are thereby excluded from income. The size of the reservoir inventories thus varies from year to year, as inventories are expanded or contracted; no permanent or semipermanent distinction is made between reservoir and marginal inventories, as in the normal-stock method.

Over a brief time span Lifo by its generous definition of reservoir inventories typically excludes inventory profits and losses from income more completely than does the normal-stock method, but over a series of years the differential will tend to disappear and may even be reversed. In the ordinary fluctuations of business activity Lifo inventories will be drawn down at some time to near the minimum level needed to maintain operations, the theoretical normal stock. For tax purposes, at least, any profits or losses that had accrued on Lifo inventories will be taken into income when these inventories are so drawn down. Thus, although Lifo may not adequately distinguish between true reservoir inventories and marginal inventories in each year, it will ordinarily do so reasonably well over a somewhat longer time span.

If reservoir inventories are liquidated, the normal-stock method charges them against income at their current values rather than at their normal-stock values on the assumption that they will soon be replaced. The strict Lifo method, however, takes the full gain or loss on liquidated inventories into income. During the war, of course, a modification was made in the Lifo procedure for involuntarily liquidated wartime inventories.

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[3] For readers of Mr. Anderson's volume it should be noted that our use of the term "reservoir inventories" in connection with Lifo differs from Mr. Anderson's. Mr. Anderson limits the term to the inventories on hand in the opening Lifo inventory in the first Lifo year but this definition seems less useful for our purposes than that here used.

The appropriateness of these normal-stock procedures for the determination of book profit and taxable income is now discussed and compared with the Lifo procedures. First, with reference to the normal-stock method, the degree of management discretion in setting the level of reservoir inventories has elements of both strength and weakness. The strength, especially for the determination of business profits, lies in the careful consideration that each management can give to its own problems in applying the method; the size and value of the normal stock are not imposed on it by rigid rules.

For tax purposes, however, this very flexibility would introduce serious difficulties in maintaining fairness among taxpayers. Since the courts have outlawed the method for other reasons, the problems that would be encountered in its tax application have never been worked out.[4] It is clear, though, that the necessarily arbitrary character of the decisions as to both the size and value of the normal-stock inventories would create great difficulties for an equitable tax application of the method. These decisions could scarcely be left to the unsupervised judgment of management, since the initial determination of the normal-stock inventory and later adjustments to it ordinarily would have major effects on taxable income. These adjustments, often made directly to surplus in business accounting, would have to be carried through the income account for tax purposes — otherwise some items of income would be taxed twice, or not at all, depending on the direction of the adjustments.

Moreover, as a general policy the problem could not be sidestepped by allowing the original normal-stock inventories once established to stand permanently unchanged. A reasonable determination of income under the normal-stock philosophy would then be achieved only if the company's inventories remained indefinitely at approximately the level anticipated when the method was installed. Any feasible adaptation of the method for tax purposes would have to permit adjustments in the size of the reservoir inventories without leaving the door open to the arbitrary manipulation of taxable income by management. Such an adaptation might end up by closely resembling Lifo as now authorized. At any rate, unless the normal-stock inventories were kept in line with the current scale of operations, the normal-stock method would not match current costs with current revenues to the degree desired by the advocates of this concept of income.

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[4] Lucas v. Kansas City Structural Steel Co., 281 U.S. 264. The Court disallowed the method on various grounds, among them that it does not take gains and losses on normal-stock inventories into income when they are realized; that it is inconsistent with the annual accounting required by Congress for income tax purposes; and that it does not conform to the general or best accounting methods.

If reservoir inventories are liquidated, the normal-stock procedure of costing them at current price levels has real merit for the determination of operating income to be reported to stockholders — especially if the liquidations are temporary as they usually will be under the normal-stock method. But for the determination of taxable income this procedure has the disadvantage of permanently excluding any gains or losses realized on the liquidation of reservoir inventories from taxable income. By and large, such exclusions are consistent with the American concept of taxable income only if the liquidations are clearly temporary and involuntary in nature. With reservoir inventories set at a much higher level under Lifo than is usual under the normal-stock method, the general presumption that liquidations will be temporary is much less strong under Lifo.

THE INVENTORY-RESERVE METHOD

Until recently, at least, to speak of the use of inventory reserves as a *method* was more often than not a misnomer. Traditionally, inventory reserves have been established by such arbitrary criteria and have been handled in so many different ways (both as between roughly comparable companies and by the same company in different years) that their use has tended to confuse rather than clarify the statement of business income. In October, 1947, however, the

Committee on Accounting Procedure greatly narrowed the range of acceptable accounting practice by issuing *Accounting Research Bulletin, No. 31* on inventory reserves. Since this bulletin has ruled against many procedures in common use prior to its issuance and has effected a marked change in industry practice, there is no need to summarize the large variety of pre-1947 procedures.

Bulletin No. 31 draws a sharp line of demarcation between two categories of reserves:

> Reserves designed to set aside a part of current profits to absorb losses feared or anticipated in respect to inventories on hand, or in connection with future purchases, . . . [and] Charges to provide, either directly or by use of a reserve, for obsolescence, deterioration, or similar losses, or for reducing an inventory to market, or for reducing an inventory to a recognized basis such as last-in first-out or its equivalent in accordance with an announced change in policy to be consistently followed thereafter, . . .[5]

Charges falling in the second category, but not those in the first, are regarded by the committee as proper deductions in the determination of net income. After explaining the reasoning behind its views the committee states its conclusion as follows:

> The committee is therefore of the opinion that inventory reserves, such as those created:
>
> (a) for possible future inventory losses on inventories not on hand or contracted for, or
>
> (b) without regard to any specific loss reasonably related to the operations of the current period, or
>
> (c) for the purpose of reducing inventories other than to a basis which is in accordance with generally accepted accounting principles,
>
> are of such a nature that charges or credits relating to such reserves should not enter into the determination of net income and that they should not be used to relieve the income account of any year.
>
> The committee is also of the opinion that if a reserve of the type described . . . is set up: (1) it should be created preferably

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[5] *Accounting Research Bulletin, No. 31*, p. 255.

> by a segregation or appropriation of surplus, (2) no costs or losses should be charged to it and no part of it should be transferred to income or in any way used to affect the determination of net income for any year, and (3) the reserve should be restored to surplus when it is no longer considered necessary. The committee recognizes as proper, though less desirable, the alternative procedure of (a) setting up such a reserve by an appropriation of net income so reported in the income statement that the final figure would clearly indicate that it is not the entire net income, and (b) of showing the subsequent return of such a reserve at the foot of the income statement after the determination of net income for the period in such a way as to clearly indicate that it is not income.[6]

Since *Bulletin No. 31* was issued, the frequency with which charges have been made against income on account of inventory and related reserves has greatly diminished. In the American Institute's sample of 525 companies, for instance, 52 companies reported such charges in their statements with closing dates in the 12 months ending June 30, 1947, and only 27 companies did so in the following year. Many of these 27 companies manage their inventory reserves in ways that, differing only in terminology (and perhaps in their tax effects) from Lifo or the normal-stock method, clearly are consistent with *Bulletin No. 31*; but a few companies still follow practices inconsistent with this bulletin.

As an illustration of a use of inventory reserves consistent with *Bulletin No. 31*, the Allied Kid Company describes its practice as follows in its annual report for the year ended June 30, 1948:

> Finished leather was valued at standard selling prices (less than current prices) less allowances for selling expenses and profit; other inventories at lower of cost or market, first-in, first-out basis. *A reserve of $750,000.00 was provided to reduce the*

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[6] *Accounting Research Bulletin, No. 31*, p. 256. In *Accounting Research Bulletin, No. 35* issued in October, 1948, however, the committee reversed its position on showing reserves at the foot of the income statement as appropriations of net income. The explanation given for this reversal is that frequent misleading references were made in annual stockholder reports and elsewhere to earnings figures from which such appropriations of income had been deducted. (See Carman G. Blough, "Why *Accounting Research Bulletin No. 35* Was Issued," *Journal of Accountancy*, January, 1949, pp. 32-33, and also American Institute of Accountants, *Accounting Trends in Corporate Reports*, pp. 17-18.)

> *inventories of raw skins and hides to an approximate last-in, first-out basis, without adopting this principle for tax purposes; an increase of $200,000.00 in this reserve was charged to earnings during the year.* [Italics added.][7]

The balance sheet for the year shows total inventories, valued as here described, less the indicated reserve of $750,000; in other words, only the net inventories are included in the total assets figure. The only clear difference from the strict Lifo procedure is that both the gross and net inventory valuations are shown, as is not common for Lifo companies.[8] So far as income is concerned, the amount reported is presumably the same as with a strict Lifo procedure, except for possible differences arising from the failure to use Lifo for tax purposes. No information is disclosed as to whether the inventory reserve is set up on a net basis, after allowing for the taxes payable on the inventory profits excluded from income by the increase in the reserve, or on a gross basis. The problem here is the same as that discussed with reference to normal-stock companies.

Several companies which value part of their inventories on Lifo for tax purposes also have provided inventory reserves against the remainder of their inventories. The Crane Company illustrates this procedure:

> In 1946, a charge of $1,340,000 was included in cost of sales as provision for possible future price decline on certain inventories not carried on a "last-in, first-out" basis. This amount, together with a further provision of $1,080,000 charged to cost of sales in 1947, a total of $2,420,000, has been deducted from the applicable inventory accounts at December 31, 1947 and has the effect of stating such inventories on a basis substantially equivalent to the "last-in, first-out" method, except that this provision has not been deducted in computing the provision for federal income taxes.[9]

Armour and Company also made large appropriations for

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[7] Note A to Financial Statements.

[8] The "gross" valuation, that is, a valuation based on current-year inventory prices, need not be computed under the strict Lifo method, but most managements would want at least an approximation of it for internal operating purposes if not for their stockholder reports.

[9] *Annual Report* for the Year Ended December 31, 1947, Note 1 to Financial Statements.

inventory price declines in its 1946 and 1947 statements against the non-Lifo segments of its inventories. These appropriations, which amounted to $17.5 million for the two years, were shown as an appropriation of income, rather than as a charge to income, presumably because the amounts were not determined in accordance with objective criteria consistently applied from year to year.

In connection with companies such as Crane and Armour it is important to emphasize that the inventory reserves do not duplicate the use of Lifo but rather apply to *different* parts of the inventory. Unjustified criticisms have been levied at Lifo companies which have also set up inventory reserves for price declines because of the failure to appreciate the complementary character of the two practices.

A few companies continue to charge increases in reserves for inventory price declines against income without specifically stating how these reserves are computed. As previously noted, the General Electric Company has long followed the practice of reporting its inventories to stockholders net of a reserve of undisclosed size, the reserve being described as follows:

> . . . Inventory reserves make provision for possible losses on inactive and excess stocks, for possible price declines, and for unrealized intercompany profits.[10]

Inasmuch as the company's auditors take no exception to its 1947 financial statements, it seems reasonable to infer that part of the company's inventories are valued by some consistent plan such as the normal-stock or Lifo procedure.

In contrast, the Westinghouse Electric Corporation in 1947 set up out of income a special "provision for future inventory losses" in the amount of $8,101,000. The provision was not made in accordance with a consistently applied method of inventory valuation, as is revealed by the following comment in the accountants' certificate:

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[10] *Annual Report* for Year Ended December 31, 1947, Note 4 to Consolidated Financial Statements. Reports filed by the company with the Securities and Exchange Commission show that the reserve was increased by about $33 million in 1947, reducing the profits of the company by around 25%. (Data for size of inventory-reserve adjustment taken from *Moody's Industrials*, 1948 Supplement, p. 2581.)

> In recognition of the hazard existing due to the present extraordinary price levels, and the increase in the companies' volume of inventories, it is the opinion of the management that a special provision of $8,101,000 for future inventory losses is necessary as a deduction from the net income in the current year. In our opinion, the accompanying . . . statements . . . present fairly the positions of the companies at December 31, 1947 and the results of their operations for the year 1947 in conformity with generally accepted accounting principles applied on a basis consistent (apart from the 1947 special provision for future inventory losses) with that of the preceding year.[11]

A number of other companies follow inventory policies which are designed to eliminate inventory profits and losses from income but which do not precisely conform to the Lifo, normal-stock, or inventory-reserve procedures. A few such instances will be cited. For several years the Mid-Continent Petroleum Corporation has explained its methods of inventory valuation as follows:

> Inventories of refined products are priced at fixed costs (lower than market) determined from refinery operations in prior period considered normal, which method is consistent with prior years. Other inventories are priced at average cost, not in excess of market.[12]

The Western Electric Company described its inventory valuation policy, as of 1945, as follows in a note to its financial statements for the year ending December 31, 1945:

> Inventories applicable to regular standard products (comprising approximately two-thirds of the total inventories at December 31, 1945) are stated at the lowest of standard cost, actual cost or market with provision for losses on shelf-worn material and from anticipated obsolescence. Under this policy such inventories at December 31, 1945 are, with minor exceptions, stated on the basis of the Company's standard costs which, being *pre-war standards*, are in most instances lower than actual cost and market. [Italics added.]

The company abandoned its prewar standard costs in 1946, and substituted standard costs based on 1946 prices and wage rates, *though no comment on this change in the method of inventory valuation is made in the accountants' certificate.*[13] In view of the pronounced increase in prices and wage rates between the prewar years and the end of 1946, the shift to current standard costs presumably had a substantial effect on the company's inventory valuation and net income for 1946.

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[11] *Annual Report*, Year Ended December 31, 1947, p. 11.

[12] *Annual Report* for the Year Ended December 31, 1947, p. 5.

The procedure of the General Refractories Company provides a final illustration of fixed-valuation inventory methods. This company's policy is described in part as follows in its accountants' certificate for the year ended December 31, 1947:

> The inventories of brick finished and in process, amounting to $1,602,239.38 at December 31, 1947, and $1,465,197.24 at December 31, 1946, are valued at estimated cost calculated by the management on the basis of cost for 1932 with production estimated at seventy per cent of plant capacity. This procedure, which has been consistently followed since January 1, 1933, results in the inventories being valued at less than cost or market. . . .

Inventory procedures such as those of the last three companies cited, though not explicitly labeled as involving the use of inventory reserves, have the same general effect on profits. The aggregate effect of such procedures on profits data may be considerably greater than is generally realized, but there is no way of estimating its magnitude in the absence of more complete data. It is also impossible to determine the extent to which such methods are used in the determination of taxable income. While fixed-valuation inventory methods, other than Lifo, are officially disallowed by the Treasury Regulations, we have encountered several instances (not cited in this chapter) in which such methods have in fact been used for tax purposes.

The above discussion summarizes most uses of inventory reserves sufficiently formalized to be designated as "methods of inventory valuation." A wide variety of other "provisions" or "reserves" to inventory accounts have been set up which do not constitute inventory methods in any strict sense of the term, but which should be referred to in this chapter if only to distinguish them from those cited above. These reserves include such items as:

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[13] Note A to the company's 1946 financial statement states: "At December 31, 1946 the standard costs used for materials approximate actual costs and the standard costs used for labor and overhead are based on current wage rates and exclude excessive overtime and night work premium payments and other costs considered to be abnormal and temporary in nature."

reserves for obsolescent inventories,
reserves to reduce inventories from cost to market,
reserves for unrealized losses based on market valuations, and
reserves for unrealized intercompany profits —

all of which are necessary to reduce inventories to a traditional "cost or market, whichever is lower" valuation. Another main class of inventory reserves is general reserves for possible future price declines which are set up by arbitrary management decisions rather than by objective criteria.[14] The close resemblance of such reserves to reserves for general contingencies is perhaps indicated by the fact that several companies have changed the names of the latter reserves to inventory reserves. While such reserves were often set up out of income during the war years, the recent bulletins of the Committee on Accounting Procedure, described above, should assure much greater consistency of practice in the handling of such items as surplus adjustments in the future.

SUMMARY

The normal-stock and inventory-reserve methods frequently resemble Lifo very closely in their effects on income. Neither, however, is officially recognized as valid for the determination of taxable income. Since taxpayers are now allowed to use Lifo, the pressure for tax authorization of the closely related normal-stock and inventory-reserve methods is not likely to become strong.

The normal-stock method differs from Lifo mainly in the designation of a specific amount of inventory goods as a "normal stock" which is maintained indefinitely at a fixed valuation. Under Lifo the analogous inventories held at a fixed valuation differ in size from year to year. The treatment of inventory liquidations also differs between the two methods. While the normal-stock procedures have advantages for financial reporting, they would present serious difficulties if used for tax purposes.

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[14] The Armour and Westinghouse reserves, cited above, presumably fall in this category.

In some instances the differences between the inventory-reserve methods and Lifo are negligible. Lifo as used by department stores, for instance, could equally well be designated as an inventory-reserve method. Other uses of inventory reserves, however, are essentially arbitrary in character and are not governed by objective criteria which can be applied consistently from year to year. Accepted accounting principles do not now permit the income account to be affected by changes in such arbitrarily determined reserves.

CHAPTER XII

Effect of Lifo on National Income and Aggregate Profits Data

THE spread of Lifo since 1939 has created serious difficulties in the compilation and interpretation of national income and aggregate profits data. As of 1949 these difficulties are minimized by the fact that Lifo and related inventory methods are still confined to a relatively small part of total inventories. But these difficulties have become more important than is generally realized, and they will be accentuated in future years for two reasons. First, in a period of inventory liquidation such as would be likely to occur in any major business depression, the problems for national income estimates introduced by Lifo will be far more complex, statistically, than those encountered when physical inventories are stable or expanding. Secondly, the use of Lifo is likely to become increasingly widespread during future periods of price rises. True, when price declines appear probable, the shift to Lifo will come to a practical halt, as it has in 1949, but a renewed interest in the method can be anticipated whenever another major upsurge in prices appears imminent. Consequently, the problems here discussed are important both for their bearing on current national income data and for their potentially increased significance in years to come.

To explain the bearing of Lifo on national income measurements it is necessary to point out briefly just what national income statistics are intended to measure and the relationship of inventory valuation procedures to these measurements. In brief, national income figures are designed to measure the *quantity* of goods and services produced (gross or net), stated in terms of a specified price level; to arrive at such measurements changes in inventory values due to price fluctuations must be segregated from those due to physical increases or decreases in inventories. As already indicated, traditional methods of inventory valuation allow price fluctuations as well as changes in physical quantities to affect the stated value of inventories. The Department of Commerce, following the general technique first outlined by Professor Kuznets, has developed a procedure for eliminating the estimated effect of price fluctuations from inventory values.[1] In brief, the initial step is to estimate the net changes in physical inventories in constant dollars which the Department of Commerce does as follows:

> . . . First, the book value of the year-end inventories is deflated, industry by industry, to yield year-end inventories in constant . . . dollars. Second, the deflated series is differenced, yielding the year-to-year net change in inventories in constant dollars. Third, the net change in inventories in constant dollars is revalued in terms of the average current prices for the period under consideration — providing the measure desired for inclusion in the gross national product.[2]

The amount obtained by the last calculation is then subtracted from the annual change in the book value of inventories, as taken from corporate reports, to obtain the Department of Commerce inventory valuation adjustment. This adjustment is reported as a negative figure in years of rising prices to indicate that national income and profits data are subject to a downward revision, and as a positive figure in years of falling prices to indicate the need of an upward revision.

For most industries the process of computing the inventory valuation adjustment is relatively straightforward, though undoubtedly subject to a considerable margin of error, so long as inventories are valued at Fifo or average cost, with or without an adjustment to market. But the computation of the adjustment becomes increasingly difficult and subject to error when Lifo and related methods are used on a significant scale. Lifo, in effect, accomplishes the purpose of the inventory valuation adjustment, provided no inventory liquidation occurs, by holding inventories at unchanged valuations. If the Department of Commerce inventory valuation adjustment were applied to inventories already on Lifo, erroneous results would be obtained; in essence, the same inventories would be twice deflated.

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[1] Simon Kuznets, "Changing Inventory Valuations and Their Effect on Business Savings and on National Income Produced," National Bureau of Economic Research, *Studies in Income and Wealth* (New York, 1937), Vol. 1, pp. 145-172.

[2] George M. Cobren, *The Nonfarm Business Inventory Component of National Wealth* (unpublished paper prepared for the Conference on Research in Income and Wealth of the National Bureau of Economic Research), p. 2.

As a general statement, the Department of Commerce has made adequate allowance for the growing use of Lifo in its national income data for the years 1945 through 1947.[3] Its estimate corresponds closely to our own estimate of $2.7 billion for the book value of Lifo inventories of manufacturers as of the end of 1947. The concurrence of the two independently prepared estimates provides strong evidence in support of the conclusion that the actual total of Lifo inventories held by manufacturers as of the end of 1947 did not vary by more than a few hundred million dollars from our estimate.

A source of error of uncertain magnitude in the Department of Commerce estimates is the assumption that all companies not explicitly on Lifo value their inventories essentially on a lower of (Fifo or average) cost or market method. The reason for this assumption is easy to comprehend. The Treasury regulations governing inventory valuation procedures explicitly disallow methods similar in their effect to Lifo such as the normal-stock, fixed-standard-cost, and inventory-reserve methods. Since the Department of Commerce bases its inventory estimates primarily on tax data, its technicians have assumed that these variants of Lifo are not used for tax purposes; indeed they have had no other practicable alternatives.

The Treasury regulations on inventories, however, are not strictly enforced. Much more emphasis is placed by field agents of the Treasury on consistency of practice than on a strict adherence to the Treasury regulations. All sorts of average-cost inventory procedures are commonly used for both book and tax purposes, although a study of the Regulations and Treasury and Court rulings would not lead one to anticipate this. More important for present purposes, some companies actually use fixed-valuation methods other than Lifo for tax as well as for book purposes, despite official Treasury and Court rulings barring such procedures.[4] In the nature of the case, information on this point is not easy to collect; but in our comparatively limited field investigations we have encountered about a half-dozen such companies, some of them very large. It is, therefore, by no means clear that this practice is of insignificant proportions. In periods of rising prices standard costs as determined by many companies sometimes also lag further behind actual costs than accounting theory would consider proper.

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[3] These allowances have been made in the inventory valuation adjustment reported in the July, 1948, issue of the *Survey of Current Business*. The allowances were less complete for the adjustment for the years 1945 and 1946 as shown in the July, 1947, supplement of the *Survey*.

The price indexes to be used in deflating the non-Lifo segment of inventories in industries in which Lifo is extensively used present special complications. Manifestly, separate statistical adjustments must be applied to the Lifo and non-Lifo inventories in such industries. In making these adjustments care must be taken to assure the selection of the proper price index in deflating the non-Lifo segment of the industry; in particular, it cannot be assumed that an index which correctly reflects price fluctuations for the total inventories in an industry will also be representative of the non-Lifo segment of the industry. In many industries, though not all, Lifo is typically applied solely or mainly to raw materials and the raw material content of goods in process and finished goods. In such industries (e.g., meat packing, parts of nonferrous metals, tanning, and textiles) the appropriate index to be applied to the non-Lifo inventories would have to be weighted more heavily with overhead and labor costs than with material costs. Since overhead and labor costs typically fluctuate much less widely than material costs, failure to weight the index properly might lead to sizable errors. The Department of Commerce has not as yet made allowance in its estimates for the differing components of inventory costs typically placed on Lifo.

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[4] Not all companies using the normal-stock method for book purposes also employ it for tax purposes. Since relatively few companies fall in this classification, the problem is ignored in the Department of Commerce estimates.

Even greater complexities arise when physical liquidations of Lifo inventories occur. When Lifo inventories are liquidated, the entire difference between the original cost of these inventories and their sales prices is taken into income. If liquidated Lifo inventories were originally acquired at much lower price levels, a sizable profit might be taken on them even in years of falling inventory prices. To the extent that the profit represents a normal operating margin it is properly included in national income of the current year. But to the extent that it represents the realization of a gain which had accrued in preceding years, it should be excluded from current national income as analogous in almost every respect to a capital gain. The reverse statement applies to high-cost Lifo inventories liquidated in years of low prices.

Thus, in years of inventory liquidation the inventory valuation adjustments required for national income purposes will have two distinct components. First, the traditional adjustment must be made to exclude from national income changes in book valuations of non-Lifo inventories. Secondly, the difference between the Lifo cost and current cost of liquidated Lifo inventories must also be eliminated as, in essence, a capital gain or loss. The two components may both operate in the same direction or they may partially offset each other, depending on the specific circumstances.

The second component can be estimated with reasonable precision only if the approximate date of acquisition of liquidated Lifo inventories can be determined. But, with existing corporate reporting practices, such a determination is next to impossible. Lifo inventories ordinarily have been built up over a period of time so that different "layers" of the same inventory good are carried at widely differing prices. Moreover, for a given company — and much more so for an industry — some inventories will be built up while others are liquidated. An aggregate estimate that Lifo inventories have been liquidated in the amount of, say, $500 million, would thus be a net figure in which increments of specific goods held by specific companies are offset against decrements of specific goods held by the same or other companies. Unless sufficient information is at hand to permit Lifo inventory data to be broken down into their component parts, large-scale liquidations of Lifo inventories may introduce major errors into national income data.

As a general comment relating to both national income and profits data, note should be taken of the potentially misleading character of bare statistics as to the percentage of inventories on Lifo. Sometimes it is said or implied that the statistical effect of Lifo is unimportant, at least for over-all data, because only 10% or so of inventories are on Lifo.[5] True, Lifo inventories are a small minority of total inventories; but it does not follow that the percentage effect of Lifo on, say, the inventory valuation adjustment will be equally small. As noted above, the most volatile components of inventories are ordinarily put on Lifo; hence the effect of Lifo on national income and profits data is more than in proportion to the percentage of inventories on Lifo.

As an incidental point, *not* bearing directly on national income data, it should be noted that data reported for total inventories held in the economy are distorted by the use of Lifo. The inventory statistics published by the Department of Commerce are stated at *book* value; Lifo inventories are not revalued in terms of current prices. With the book value of Lifo inventories held by manufacturers amounting to nearly $3 billion as of the end of 1947, the difference between their book and current values as of this date would be large, probably between $1 and $2 billion. Currently available statistics thus underestimate the dollar value of inventory holdings to this extent. Similarly, inventory data published in recent years are not comparable to those of earlier years on account of the increasing use of Lifo. While the percentage error is not great for all corporate inventories, it could lead to serious inaccuracies for analyses of the inventory position of industries in which Lifo is widely used.

Many of the points made above in connection with national income estimates apply also to profits data, but certain special considerations affecting profits data uniquely deserve emphasis. In current discussions of the level of corporate profits vigorous debate has centered about the question whether the appropriate profits concept should include or exclude inventory profits, or rather the inventory valuation adjustment as defined by the Department of Commerce. This is not the appropriate place at which to enter this debate, but one point of statistical interpretation should be stressed.[6]

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[5] See Chapter III for estimates of the extent to which Lifo is actually used by companies in various industries.

Since Lifo has come into widespread use, aggregate profits data do not fully include inventory profits and losses in corporate profits data. In the unadjusted Department of Commerce profits data, the inclusion or exclusion of inventory profits is determined by the inventory valuation procedures followed by individual companies. With the spread of Lifo the unadjusted Department of Commerce data have become more and more heterogeneous in concept; in some industries they include practically all inventory profits and in others they exclude major portions of these profits. For most purposes for which profits data are used, the company decisions to include or exclude inventory profits and losses in their reported incomes must be regarded as haphazard and accidental, especially since companies in the same industry often follow diametrically opposite practices.

To make essentially the same point in a different way, the unadjusted corporate profits data as now published by the Department of Commerce cannot be accepted as correct in principle either by those who prefer to include inventory profits and losses in profits or by those who wish to exclude them. If inventory profits should be included in corporate profits, the Department of Commerce data for recent years *understate* corporate profits to the extent that the use of Lifo has reduced the stated profits of numerous companies. While this point is clear in principle, an attempt to estimate the amount of the understatement would encounter almost insuperable statistical difficulties. To be sure, if inventory profits should be excluded from corporate profits, the Department of Commerce profits data would be correctly stated in principle — at least so far as inventory problems are concerned — after they are corrected by the amount of the Department of Commerce inventory valuation adjustment.

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[6] See Chapter VI for a discussion of the relationship of inventory profits and losses to the general concept of profits.

On the same general point, the incomparability over recent years of unadjusted aggregate profits data should be noted. Until 1939 practically all inventory profits and losses could safely be assumed to be included in profits; exclusions caused by the limited use of Lifo and related inventory methods almost certainly were of minor importance. Since then larger and larger percentages of inventory profits have been excluded because of the increasing use of Lifo. To this degree postwar unadjusted profits data simply are not comparable in concept with prewar data.

All the points here made with respect to profits in the aggregate obviously apply with even more force to industries in which Lifo is widely used and to comparisons of individual companies with divergent inventory practices. Financial analyses of industry performances and prospects and of individual companies which do not take account of divergent and changing inventory practices are likely to be seriously misleading.

On the specialized question of the effect of liquidations of Lifo inventories, problems arise for corporate reporting to stockholders and for income tax purposes which are analogous to those here discussed in connection with national income estimates. These problems have been considered in Chapters VI and X. For corporate reporting to stockholders strong reasons can be advanced for earmarking gains and losses on account of Lifo inventory liquidations, or even for excluding them from income; for tax purposes, however, such gains and losses (unless involuntary) must be included in income to be consistent with the American concept of taxable income.

CONCLUSION

The increasing use of Lifo has greatly complicated the task of the national income estimator and has increased the likelihood of errors in the determination of the size of the inventory valuation adjustment. To date, however, any errors in the treatment of Lifo inventories by the Department of Commerce can safely be assumed *not* to have affected the size of the inventory valuation adjustment to a major degree, since the use of Lifo is still restricted to a relatively small fraction of total inventories. To illustrate, if the use of Lifo by manufacturing corporations had been completely ignored by the Department of Commerce, the increase in the inventory valuation adjustment for all manufacturing corporations would have been in the order of 20% of the figure actually reported.

It should be emphasized once again, however, that the potential magnitude of errors is much larger when narrower industrial classifications are examined. Larger errors may also be inevitable in future years when sizable inventory liquidations may occur or when the use of Lifo may be extended to a larger fraction of the economy.

APPENDIXES

Appendix A

Detailed Data on Use of Lifo

THIS Appendix presents a detailed analysis of the separate industrial samples which comprise Sample II and which were summarized in Chapter III.

Petroleum Companies

The 73 companies in this sample were selected from *Moody's Industrials* listing of "Petroleum producing, refining, transporting and distributing" companies. All companies listed were included in the sample with the following exceptions: foreign companies, companies engaged mainly in transportation (including pipeline companies), and companies for which no method of inventory valuation was reported. Financial data were obtained mainly from stockholder reports and prospectuses, but *Moody's* was used for the year 1947 for five companies, and, in the absence of other data, for most of the companies with total assets of less than $10 million. (The same general procedure has been followed in selecting the samples for the nine remaining industries.)

The combination of producing companies with companies also engaged in refining and distributing is perhaps unfortunate. Only 4 of 32 companies classified as mainly producers have adopted Lifo; producers' inventories are relatively small so that the method of inventory valuation employed has a minor effect on income, as compared with refiners and distributors. The inclusion of producing companies in the sample means that the use of Lifo by companies other than producers is understated by the over-all data of the sample, though probably not to an important degree.

The petroleum industry is unique in its relatively complete disclosure of the extent to which Lifo is used. Almost all the Lifo companies reveal the proportion of their dollar inventories on Lifo in 1947 (Table 24). Petroleum companies typically classify their inventories into three components: crude petroleum and petroleum products, merchandise purchased for resale (such as tires and batteries), and supplies. The use of Lifo is generally confined to crude petroleum and petroleum products, although it is occasionally applied to merchandise. Typically, petroleum companies apply Lifo to all components of cost — labor, materials, and overhead — rather than just to raw materials and the raw material content of goods in process and finished goods.

TABLE 24. DATA ON COMPANIES

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*
0 – Under 10			
W. H. Barber Co.	$6,555	$1,301	19.8%
Derby Oil Co.	6,522	1,170	17.9
Group No. 1 Oil Corp.	3,258	8	. . .
Group No. 2 Oil Corp.	776	2	. . .
Johnson Oil Refining Co.[b]	5,632	1,413	25.1
Texon Oil and Land Co. (Del.)	5,939	5	. . .
Wilcox Oil Co.	5,063	611	12.1
10 – 50			
Ashland Oil & Refining Co.	$23,787	$5,045	21.2%
Kendall Refining Co.[b]	10,890	1,659	15.2
Quaker State Oil Refining Corp.[b]	24,700	5,077	20.6
South Penn Oil Co.	43,226	1,595	3.7
50 – 100			
Standard Oil Co. (Kentucky)	$69,172	$12,037	17.4%
100 – 500			
Atlantic Refining Co.	$329,645	$49,722	15.1%
Continental Oil Co.	209,224	27,624	13.2
Phillips Petroleum Co.	439,289	45,163	10.3
Pure Oil Co.[b]	244,540	35,453	14.5
Richfield Oil Corp.	109,180	18,960	17.4
Standard Oil Co. (Ohio)	188,866	28,413	15.0
Sun Oil Co.	242,303	44,185	18.2
Tide Water Associated Oil Co.	262,801	46,291	17.6
Union Oil Co. of California	271,827	22,148	8.1
500 and over			
Cities Service Co.	$899,585	$61,522	6.8%[d]
Gulf Oil Corp.	929,169	113,928	12.3
Sinclair Oil Corp.	591,280	76,894	13.0
Standard Oil Co. (Calif.)	876,185	64,911	7.4
Standard Oil Co. (Indiana)	1,268,104	142,470	11.2
Standard Oil Co. (N.J.)	2,995,990	351,084	11.7

[a] Includes containers. [b] As reported in *Moody's*. [c] At March 31, 1948. [d] Inventories of crude oil, refined and semirefined products at the refinery stated at cost (Lifo); inventories of refined products and merchandise at marketing stations stated at lower of approximate cost (Fifo) or market. [e] Computed.

Approximately $770 million of the inventories of petroleum companies in our sample are valued on Lifo. This amount represents, in dollars, about two-thirds of the inventories of companies using Lifo and about 46% of the total inventories of $1.7 billion

ON LIFO IN 1947: PETROLEUM

Lifo Inventory (In thousands)	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*		
			Crude Oil	*Refined Oil*	*Merchandise*
$596	45.8%	1941	...	...	X[a]
744	63.6	1947	X	X	...
8	...	1947	X	...	...
2	...	1947	X	...	...
1,017	72.0	1941	X	X	...
5	...	1947	X	...	...
390	63.8	1947	X	X	...
...	52.3[c]%	1941	X[d]	X[d]	...
$1,344[e]	81.0	1941	(not given)		
4,433	87.3	1939[f]	X	X[f]	...
471	29.5	1942	X	...	...
$11,649	96.8%	1941	...	...	X[g]
$33,698	67.8%	1933	X[g]	X[g]	...
25,520	92.4	1947	X	X	...
28,111[b]	62.2	1941[h]	X	X	...
27,662	78.0	1937	X	X	X
15,888	83.8	1937	X	X	...
18,842	66.3	1941	X	X	X
25,567	57.9	1942[h]	X	X	...
33,901	73.2	1947	X	X	...
18,064	81.6	1945	X	X	...
$36,406	59.2%	1940[r]	X	X[i]	...
71,336	62.6	1935	X	X	...
60,391	78.5	1934[j]	X	X	...
43,938	67.7	1935[h]	X	X	...
112,807	79.2	1946	X	X	...
192,269	54.8	1941	X	X	X

[f] Extended in 1941 to include refined oil. [g] Principally. [h] First mention in annual report of use of Lifo. [i] Extended in 1947 to include refined oil. [j] Use of Lifo first mentioned in report for 1934; probably used in prior years but not before 1932.

contained in the sample. The Lifo percentages would, of course, be much higher if Lifo and non-Lifo inventories were stated at the same price level, for the price increases of petroleum products between, say, 1941 and 1947, have been large.

Of the 73 companies in the sample only 27 are on Lifo, but these 27 companies held nearly 70% of the inventories as of December 31, 1947. The size concentration in the use of Lifo is also indicated by the fact that 15 of the 22 companies with assets in excess of $100 million are on Lifo, as compared with only 12 of the 51 companies with assets of less than $100 million.

The petroleum industry was one of the earliest to adopt Lifo on a wide scale; six of the 27 Lifo companies shifted to the method before 1939 and 16 by the end of 1941. Eight companies, however, shifted as late as 1946 and 1947.

Iron and Steel Companies

The 24 basic iron and steel companies in our sample were taken from *Standard and Poor's Industry Survey*; the sample, which includes producers of iron and iron ore as well as of steel, encompasses about 90% of the iron and steel manufacturing capacity of the industry in 1945.[1] The financial data for the companies in the sample are taken from corporate reports except for five small companies for which *Moody's* was used. The sample was restricted to the basic manufacturers of iron and steel, since very few fabricators of iron and steel products are thought to use Lifo.

Iron and steel companies, in general, disclose relatively little information about their use of Lifo; this complicates the problem of estimating the Lifo components of the inventories held by companies partly on Lifo. Only two companies give specific information as to the percentage of their total inventories on Lifo, and none of the companies discloses the current cost or market values of its Lifo inventories (Table 25). Five of the six Lifo companies reported the effect on inventory values in the first year in which Lifo was used.

While no precise information can be had, the evidence together with our field interviews indicates that the Lifo inventories amount to a minimum of $475 million, or 75% of the inventories held by the six Lifo companies and about 48% of the total inventories in the sample. Bethlehem Steel Corporation's annual report for 1947 explicitly states that 75% of its inventories are on Lifo.[2] Similarly, the United States Steel Corporation's 1947 report states:

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[1] This estimate is based on data of the American Iron and Steel Institute, which show: Pig and Ferro-Alloys, industry capacity 66.3 million tons, sample 61.6 million tons (92.9%); Steel ingots and Steel for Castings, industry capacity 95.5 million tons, sample 84.7 million tons (88.7%).

[2] The report states: "Effective as of January 1, 1947, the last-in, first-out method was used in determining the values of approximately 75 per cent of the consolidated inventories, including certain materials entering into the cost of contract work in progress." (Page 7.)

TABLE 25. DATA ON COMPANIES ON LIFO IN 1947: IRON AND STEEL

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
None							
10 – 50							
Woodward Iron Co.[a]	$25,037	$1,557	6.2%	...	35.7%[b]	1941	Raw materials and finished prod.
50 – 100							
None							
100 – 500							
Jones & Laughlin Steel Corp.	$341,329	$50,249	14.7%	...	...	1941[c]	Certain purchased materials, supplies, stores, and spares.
National Steel Corp.	292,361	38,555	13.2	...	...	1942	Raw materials, finished, and semi-finished product.
Republic Steel Corp.	455,061	90,137	19.8	...	...	1941	Inventory of corporation and two of its subsidiaries.
500 and over							
Bethlehem Steel Corp.	$948,758	$164,239	17.3%	$123,179[d]	75.0%	1947	Not given.
United States Steel Corp.	2,162,613	289,237	13.4	...	...	1941[e]	For the most part, inventory at 1940 dollars.

[a] All information, except footnote b, taken from *Moody's*. [b] At December 31, 1946 (N.Y. Stock Exchange Listing Application). [c] Extended in 1947. [d] Computed. [e] Extended in 1942 and 1947.

> U. S. Steel in 1941 substituted the last-in, first-out method of determining the cost of its major classifications of inventories for the average cost method previously used when prices were relatively stable. In 1942 and 1947, as it became practicable to do so, this method was extended to certain other inventories. Thus, U. S. Steel's inventories, for the most part, are priced in 1940 dollars. By this change in method, rising wages and prices currently incurred by U. S. Steel to reproduce what is sold are recorded as cost and not as increased inventory valuation and seeming profit.[3]

If most of U. S. Steel's inventories are now stated in 1940 dollars, and two extensions of Lifo were made after 1940, it would seem conservative to estimate that at least 75% of its inventories must be on Lifo. Since Bethlehem and U. S. Steel together hold 72% of the inventories of the six Lifo companies, these two companies can be assumed to dominate the industry picture. A further reason for believing that the percentage of Lifo inventories held by the Lifo companies is high is that typically Lifo is applied to all cost components — labor, materials, and overhead — by the iron and steel companies using the method.

As in the petroleum industry, the use of Lifo is concentrated among the largest companies. While the four largest companies in the industry are on Lifo, the method is used by only one of the ten companies in our sample with assets of less than $50 million.

Four of the six Lifo companies adopted the method in 1941; two of these companies extended it to additional items in later years. One other company adopted Lifo in 1942, and, as has been noted, Bethlehem made the shift in 1947.

Food Companies except Meat Packers

This sample was drawn from *Moody's* listing of "Food" companies, except that meat packers were excluded. Companies listed under the headings "Sugar Producers," "Sugar Refiners," and "Distillers" are also included. No systematic sample was taken of brewers since the data in *Moody's* are highly incomplete. Brewers known to be on Lifo are included in the miscellaneous manufacturing list. The sample contains 156 companies after the exclusion of foreign companies and companies for which no inventory valuation method is reported. The data were taken from stockholder reports for 72 companies and from *Moody's* for the remainder.

Nine of the 21 Lifo companies disclosed the amount of their Lifo inventories (Table 26). Estimates of the Lifo inventories of the remaining companies, however, necessarily are based on very crude guesses except for the companies covered in our field inquiries. In general, we have for this as for other industries tried to verify our estimates where errors of significant size appeared possible.

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[3] United States Steel Corporation, *Annual Report, 1947*, pp. 25-26.

As a rough estimate, approximately $245 million of the food and distillers inventories appear to be on Lifo, or about 46% of the total inventories of Lifo companies and 13% of all inventories in the sample. Slightly over half the Lifo inventories are estimated to be held by two large distillers. Sugar refiners, corn refiners, food canners, and chewing gum manufacturers also hold substantial Lifo inventories, though except possibly for chewing gum manufacturers not a major portion of the inventories in these industries. The inventories of food companies on Lifo do not fit any standard pattern. Companies which import their major raw materials (American Chicle Company) and hence typically have large stocks on hand or in shipment, sometimes apply Lifo only to their raw materials, excluding even the material content of goods in process and finished goods. In contrast, distillers and fruit and vegetable packers, with inventories consisting mainly of finished goods in warehouses, often apply Lifo solely to these goods.

Nearly one-third of the companies with assets of over $50 million (9 out of 31) were on Lifo while only 10% (12 out of 125) of those with assets of less than $50 million used the method. In the aggregate the Lifo companies held about 28% of the total inventories in the sample.

Of the 21 Lifo companies, 16 adopted Lifo in 1942 or earlier years while only five have made the shift since then.

Meat Packers

All 18 companies listed as meat packers in *Moody's* were included in this sample. Financial data were taken directly from corporate reports for nine companies, including most of the larger ones, and from *Moody's* and *Standard Corporation Records* for the remaining nine companies.

A considerable amount of information is available on the use of Lifo by meat packers, but most of it is not conveniently disclosed in current annual reports. In one year or another most of the packers have listed the major products which they have put on Lifo. The book value of Lifo inventories as of 1947 typically is not stated in annual reports but for several companies it is given in data submitted to the Securities and Exchange Commission or can be estimated from data disclosed in prospectuses (Table 27). No company

TABLE 26. DATA ON COMPANIES ON LIFO IN 1947: FOOD (EXCEPT MEAT PACKERS)

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Pleasant Valley Wine Co.[a]	$1,378	$702	50.9%	...	...	1942	Part of wine inventory.
10 – 50							
American Chicle Co.	$27,464	$12,449	45.3%	...	...	1944	Chicle.
American Maize-Products Co.	11,483	2,689	23.4	...	...	1939	Corn & corn content of inventories.
American Molasses Co.	10,068[b]	3,870[b]	38.4	$476[b]	12.3%	1942	Am. Molasses Co. & two subsidiaries.
Beech-Nut Packing Co.	37,677	18,167	48.2	...	...	1942	Gums and flavoring oils.
E. J. Brach & Sons[a]	17,173	4,427	25.8	...	...	1941	Principally Lifo.
Clinton Industries, Inc.	23,364	5,885	25.2	...	11.3[c]	1942	Corn, syrup, sugar, and starch.
Holly Sugar Corp.	45,146	18,915	41.9	13,878	73.4	1942	Sugar.
Kellogg Co.	32,803	9,124	27.8	...	20.7[d]	1941	Certain materials; 1941 report states "raw grain."
Rockwood & Co.[a]	11,133	5,825	52.3	...	...	1941	Principal raw material.
Seeman Bros., Inc.	11,074[b]	5,771[b]	52.1	988[b]	17.1	1947[e]	Tea.
Utah-Idaho Sugar Co.[a]	35,143	13,328	37.9	10,618[f]	79.7[f]	1944	Refined sugar, new sugar containers, and molasses.

50 – 100							
Archer-Daniels-Midland Co.	$87,584[b]	$44,387[b]	50.7%	$3,861[b]	8.7%	1942	Linseed oil, soybean oil, and crude fish oil.
Carnation Co.	66,532	16,859	25.3	1,973	11.7	1941	Raw grains and commodity inventory of a subsidiary.
Libby, McNeill & Libby	82,074	28,501	34.7	14,647	51.4	1941[g]	Certain raw materials and practically all finished products.
Wesson Oil & Snowdrift Co., Inc.	75,309	28,284	37.6	14,338	50.7	1942	Vegetable oils and by-products.
Wm. Wrigley, Jr. Co.	65,455	19,406	29.6	...	...	1942	Certain principal raw materials.
100 – 500							
Borden Co.	$221,818	$48,922	22.1%	...	...	1939[h]	Eight classes of manufactured prod.
California Packing Corp.	102,723	36,334	35.4	$22,256	61.3%	1942	Major part: canned fruits, vegetables, fish (other than salmon), coffee, and dried fruits.
Nat'l. Distillers Prod. Corp.	209,553	93,123	44.4	...	...	1943	Domestic whiskey and spirits, and domestic wines.
Joseph E. Seagram & Sons, Inc.	233,512	116,796	50.0	...	...	1943	Whiskey and spirits.

[a] As reported in *Moody's*. [b] Fiscal year ending June 30, 1948. [c] At June 30, 1947 (New York Stock Exchange Listing Application). [d] At December 31, 1941. [e] At June 30, 1948, classified here as 1947. [f] Refined sugar inventory only. [g] Extended in 1942. [h] Extended in 1940, 1941, and 1947.

TABLE 27. DATA ON COMPANIES ON LIFO IN 1947: MEAT PACKERS

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Hunter Packing Co.[a]	$4,616	$1,119	24.2%	...	...	...[b]	Not indicated.
10 – 50							
Kingan & Co., Inc.[a]	$22,165	$4,859	21.9%	...	...	...[c]	Not indicated.
Oscar Mayer & Co., Inc.	19,923	5,245	26.3	...	56.4%[d]	1941[d]	Livestock and certain pork products.
John Morrell & Co.	47,000	13,379	28.5	$4,354	32.5	1941	Live hogs and pork products.
Rath Packing Co.	29,844[a]	9,108[a]	30.5	...	...	1941	Live hogs and pork products.[a]
50 – 100							
None							
100 – 500							
Armour & Co. (Illinois)	$420,886	$175,162	41.6%	$25,221[a]	14.4%	1941[e]	Pork products; leather, soap, glue, glycerine.
Swift & Co.	437,148	137,537	31.5	75,000[f]	54.5[f]	1941[g]	Major portion of product inventories.
Wilson & Co., Inc.	139,801	53,432	38.2	...	27.2[h]	1941[e]	Pork, hides, and vegetable oils.

[a] As reported in *Moody's*. [b] Not available but probably 1941; company claimed involuntary liquidation "during period ended January 3, 1942." [c] First company report available was 1943; company on Lifo then. [d] At October 31, 1942. Lifo extended to livestock in 1942. [e] Use of Lifo extended in 1947. [f] Data for Lifo inventory at November 1, 1947, was estimated from data reported in 1947 *Year Book* and in *Prospectus* dated April 28, 1948. [g] Use of Lifo extended in 1942. [h] At June 30, 1945.

discloses the market value of its Lifo inventories; the lack of this information makes the interpretation of the financial statements of the meat packers on Lifo especially difficult because of the extreme fluctuations which have occurred in prices of meat animals and other of their "raw materials" since Lifo was first adopted.

All meat packers on Lifo have applied the method to pork products and several to live hogs as well. Swift, in contrast to the other major packers, also values beef, lamb, and veal products on Lifo. In addition, a variety of other products held by the major packers such as hides, soap, glue, glycerine, cheese, gelatin, and shortening materials have been placed on Lifo by one or more companies.

In contrast to petroleum and iron and steel companies, the meat packers typically apply Lifo mainly to the raw material content of their inventories rather than to all components of cost, although small amounts of processing costs are included. By agreement with the Treasury Department all pork products at whatever stage of processing are converted to comparable units at the "green meat" stage in the application of Lifo; this stage includes slaughtering and certain other processing costs. The exclusion of most labor and overhead costs from Lifo inventories is, however, of relatively minor importance for the meat packers, since raw materials account for about 80% of the costs of their major products and fluctuate in price much more violently than the labor and overhead components of cost.

The meat packers in our sample probably had about $130 million of their inventories valued on Lifo as of November 1, 1947, the approximate end of the fiscal year of Swift and Armour. Moreover, our sample probably includes almost all Lifo inventories in the industry. This estimate is made by assuming that the same percentage of Lifo inventories to total inventories held by Swift and Armour is characteristic of the other packers on Lifo; Swift and Armour, together, appear to have about $100 million out of $313 million inventories, or 32% on Lifo.[4] The Lifo inventories amount to about 27% of the total inventories of all meat packers in our sample, whereas Lifo companies hold about 84% of the total inventories. The difference in these two percentages stresses the necessity of distinguishing between Lifo inventories as such and the total inventories held by Lifo companies.

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[4] *Moody's* 1948 edition reports that Armour's Lifo inventories amount to $25.2 million; no data are disclosed in the company's annual report but the *Moody's* information is taken from Securities and Exchange Commission data. Swift has a much larger percentage of its inventories on Lifo. Our estimate of $75 million, which may be subject to considerable error, has been computed indirectly from information disclosed in a prospectus dated April 28, 1948, and from a discussion of the relationship of raw material costs to the sales dollar appearing in the 1947 annual report.

Two important qualifications, however, must be made to the above data. First, the inventories of meat packers typically undergo a large seasonal expansion between November 1 and December 31. Since Swift and several other companies file their tax returns on a calendar-year basis, substantially larger inventories will be shown in their tax returns than in their annual reports. This factor would need to be taken into account by investigators, such as the Department of Commerce national income researchers, who rely largely on tax data.

The second point has been made with respect to the other industries, but it applies with unusual force to the meat packers. Prices paid to farmers for meat animals in October, 1947, were more than three times as high as those of October-December, 1940 (the approximate date when Lifo was adopted by most packers). While no data are available as to the price levels at which the Lifo inventories of meat packers are in fact valued, quite possibly these inventories, restated in late 1947 prices, might be more than twice as large as their Lifo values. In other words, the preceding percentage figures would have to be adjusted sharply upward, if Lifo and non-Lifo inventories were stated in comparable prices.

As to numbers of companies, Lifo is again concentrated among the large companies. Three of the "big four" packers are on Lifo, as are four of the seven companies with assets of $10 to $50 million. But only one of the seven companies with assets of less than $10 million is on Lifo.

Of the eight Lifo companies in the sample, six adopted Lifo for the first time in 1941. Precise information is not at hand for the other two companies, but indirect evidence indicates that both were on Lifo by 1943; they may also have elected the method in 1941.

Textile Companies

This sample of 59 companies was compiled from those listed in *Moody's* under the headings "Textiles — Cotton," "Textiles — Woolens," and "Rugs and Carpets." No samples were selected from the companies listed under "Textiles — Drying and Finishing," "— Rayon Yarn," "— Silk and Rayon," or "— Miscellaneous," as none of these companies used Lifo save for one producer of rayon yarn which adopted Lifo for book but not for tax purposes. This rayon producer is included in the miscellaneous manufacturing sample.

Eighty-five companies are listed under the headings included in the sample; two additional companies not listed under any of the headings but reported in *Moody's* are also included. Five companies were eliminated to avoid duplications; as were 10 Canadian companies and 13 additional companies for which the method of inventory valuation could not be determined. Five instances were found in which *Moody's* gave no indication that a company was on Lifo, although use of the method was disclosed in annual reports or prospectuses.

Most of the companies in this sample have not disclosed the percentage of their inventories on Lifo (Table 28). While the items on Lifo are generally described — as, for instance, "cotton and cotton content of goods in process and finished goods" — two sources of ambiguity remain: (1) many companies use more than one raw material — as cotton and rayon — and the proportion in the inventory of any one commodity was not disclosed; and (2) frequently it was not clear whether Lifo inventories include only raw material and raw material content or labor and overhead as well. The typical practice of textile companies, however, is to place on Lifo only the main raw material or materials, and the raw material content of goods in process and finished goods; in our estimates this procedure was assumed to be used whenever the description was ambiguous.

Subject to a moderate margin of error, we estimate that about $165 million of the total inventories of Lifo companies are on Lifo; this figure amounts to 40% of the $414 million inventories held by Lifo companies and to 29% of the total inventories of $577 million in the sample. In evaluating this figure two facts should be noted. First, since 1940 price rises of most textiles, especially cotton, have been very large so that in late 1947 prices the Lifo inventories would be stated at a much larger figure — perhaps at twice their Lifo values. Secondly, the percentage of Lifo inventories to total inventories held by Lifo companies is reduced by five large companies which have only a very small percentage of their inventories on Lifo and are not typical of Lifo companies.[5] If these five companies were eliminated from the Lifo group, Lifo inventories would amount to $157 million out of $275 million total inventories held by Lifo companies, or 57% of the total.

Nearly 60% of the companies in the sample, 34 out of 59, are on Lifo; these companies hold about 72% of the total inventories. There is some concentration in the use of the method by large com-

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[5] Pacific Mills, for instance, has about 1% of its inventories on Lifo because of the purchase of a subsidiary which had elected Lifo before its acquisition.

TABLE 28. DATA ON COMPANIES ON LIFO IN 1947: TEXTILES

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Allen Industries, Inc.	\$8,897[a]	\$2,364[a]	26.6%	...	...	1939	Major raw materials.
Appleton Co.	5,630[a]	956[a]	17.0	...	...	1941	Raw cotton & cot. content of w. i. p. & fin. goods.
Artloom Corp.	7,105	1,644	23.1	...	...	1939	Basic raw materials.
Belding Heminway Co., Inc.	8,364	2,740	32.8	...	...	1942	Cottcn yarns, grey in process, essentially Lifo on yearly basis, fin. threads, piece goods, greige goods and r. m. other than cotton and hosiery valued essentially on Lifo on *monthly* basis.
Consolidated Textile Co., Inc.	8,105[a]	558[a]	6.9	...	...	1942	Raw cotton, w. i. p., & grey & fin. cloth.
Henrietta Mills[a]	6,021	1,893	31.4	...	...	1943	Cotton.
Kilburn Mills[a]	2,868	949	33.1	...	...	1943	Cotton and w. i. p.; rayon & yarns at l. of c. or m.
Martel Mills Corp.[a]	6,352	2,528	39.8	...	...	1942	Cotton.
10 – 50							
American Thread Co., Inc.	\$34,052	\$14,609	42.9%	...	...	1940	Principal cost elements of fin. goods, w. i. p., r. m., & supplies.
Am. Yarn & Processing Co.	14,299	4,452	31.1	...	82.3%[b]	1941	R. m. & r. m. content, of parent & certain subsid.
Bigelow-Sanford Carpet Co.	40,010	17,065	42.7	...	...	1939	Material costs.
Dwight Manufacturing Co.	14,569	5,670	38.9	...	...	1942	Cotton and cotton content.
Firth Carpet Co.	10,286[a]	4,497[a]	43.7	...	...	1940[c]	Raw materials, work in process, & fin. goods.[c]
Graniteville Co.	17,733	4,466	25.2	...	...	1942	Cotton, stock in process and finished goods.
Kendall Co.	29,630	13,752	46.4	\$10,279	74.7	1941	Not disclosed.
James Lees and Sons Co.	22,843	10,181	44.6	...	...	1940	Raw materials, work in process and fin. goods.
M. Lowenstein & Sons, Inc.	44,664	17,604	39.4	868	4.9	....	Cotton and grey goods inv. of three subsidiaries.

Mohawk Carpet Mills, Inc.	28,052	12,375	44.1	. . .	. . .	1939	Wool.
Mt. Vernon-Woodberry Mills, Inc.[a]	19,097	5,404	28.3	. . .	. . .	1941	Cotton and cotton content.
Pepperell Manufacturing Co.	38,526[d]	11,667[d]	30.3	. . .	. . .	1942	Cotton content.
Reeves Bros., Inc.	21,936[ad]	8,542[ad]	38.9	4,224[ad]	49.4	1942[c]	The inv. of parent and three subsidiaries.[e]
Standard-Coosa-Thatcher Co.[a]	12,805	3,604	28.1	. . .	. . .	1942	All except supplies.
Textiles Incorporated[a]	10,587	2,149	20.3	. . .	. . .	1941	Finished products, w. i. p., and r. m. generally.
West Point Manufacturing Co.	44,478	8,526	19.2	. . .	. . .	1942	Cotton & cotton content (one subsid. also on Lifo for processing costs & one other entirely Fifo).
William Whitman Co., Inc. (Mass.)	32,143	15,096	47.0	13,697	90.7	1947[e]	Inventories generally.
50 – 100							
Cone Mills Corp.	$84,333	$17,807	21.1%	. . .	. . .	. . . .	Cotton content.
Dan River Mills, Inc.	57,582	26,323	45.7	. . .	. . .	1941	Cotton in bales and cotton content.
Pacific Mills[a]	58,139	23,081	39.7	$296	1.3%	. . . .[f]	Cotton inventory of a subsidiary.
Simmons Co.	65,524	20,916	31.9	. . .	. . .	1941	Products not specified.
Textron Incorporated	57,010	23,484	41.2	9,659	41.1	1941	Mat. content of cotton inventories of two subsid.
United Merchants and Manufacturers, Inc.	97,399[d]	24,836[d]	25.5	1,571[d]	6.3	1941	Raw cotton and cotton content, of div. formerly a subsid.
100 – 500							
Burlington Mills Corp.	$125,178	$33,492	26.8%	$674	2.0%	. . . .[g]	Not disclosed.[g]
Cannon Mills Co.	100,558	33,848	33.7	. . .	. . .	1941	Fin. goods, goods in process, and raw mat.
J. P. Stevens & Co., Inc.	141,467[a]	36,536[a]	25.8	3,789[a]	10.4	1942	Two divisions, formerly predecessor companies.

[a] As reported in *Moody's*. [b] At December 31, 1945. [c] New York Stock Exchange Listing Application. [d] Fiscal year ending June 30, 1947. [e] Two partly owned subsidiaries adopted Lifo earlier — one in 1941 and the other in 1942; parent changed in 1947. [f] Subsidiary on Lifo when acquired in 1945; date Lifo adopted unknown. [g] Burlington Mills deals mainly in rayon textiles, but a subsidiary (now a division) making cotton goods was on Lifo when acquired in 1943; date subsidiary adopted Lifo unknown.

panies though not so marked as in many industries; nearly two-thirds of the $10 to $50 million asset class are on Lifo as compared with one-third of the under $10 million asset class.

Large numbers of small and medium-size textile companies are not included in our sample; since these companies seem to use Lifo extensively, our textile sample probably fails to include a substantial quantity of Lifo inventories. It probably represents one of the most serious gaps in our tabulation of Lifo inventories.

Lifo is used to different degrees by the three subgroups — cottons, woolens, and rugs and carpets — in the textile sample. Of the 40 companies with cotton inventories, 27 use Lifo to some degree and their Lifo inventories are estimated to amount to $118 million. After the elimination of four atypical companies holding large non-cotton inventories, the remaining 36 companies hold total inventories of $259 million of which $114 million, or about 44%, are Lifo inventories. Our sample, however, undoubtedly contains a more complete coverage of Lifo than of non-Lifo companies with cotton inventories. Likewise, five of the seven rug and carpet companies are on Lifo; their Lifo inventories are estimated at $29 million, or 45%, of the total inventories held by the seven rug and carpet manufacturers. Among the woolen group, however, Lifo has been adopted by only 2 of 12 companies, with Lifo inventories estimated at $18 million, or 11% of the total woolen inventories. One explanation which several accountants have given for the less extensive use of Lifo by woolen companies is that the method is much more difficult for them to apply because of the great variety of grades of raw wool and the importance of style factors in finished woolen products.

Of the 30 companies for which the date of the shift to Lifo could be determined, 7 elected Lifo in 1939 and 1940, and 20 in 1941 and 1942. All 5 carpet manufacturers made the shift in 1939 or 1940, and 19 of 21 cotton companies adopting Lifo did so in 1941 or 1942. The sharp price rise in cotton in 1941 enabled profitable cotton manufacturers to make large tax savings by shifting to Lifo in that year, if they had not already done so.

Nonferrous Metals Companies

The 54 companies in this sample were taken from the following industrial classifications of *Moody's:* "Mining and Processing — Copper," "Mining — Lead and Zinc," "Mining — Miscellaneous Metals and Minerals," and "Metal Products — Miscellaneous." Annual reports were available for all but 19 companies, mostly small, for which data were taken from *Moody's*. Twelve companies were not included because the basis of inventory valuation was not given in *Moody's*. One of these is the Aluminum Company of America, which reports no information in *Moody's* or elsewhere on its method of inventory valuation. Foreign companies were omitted as well as consolidated subsidiaries; also some companies under "Metal Products — Miscellaneous" were omitted because available information indicated their major business was other than nonferrous metals.

Of the 15 Lifo companies only six disclose the proportion of their 1947 inventories on Lifo (Table 29). One company (The American Metal Co., Ltd.) reports current information on the market value of Lifo inventories; it has shown the approximate market value of its Lifo inventories in its annual reports each year since the adoption of Lifo.[6] Two others report the Lifo valuation per pound of copper inventories, as contrasted with current market prices, but neither discloses the number of pounds of copper in its inventories.

Among the Lifo producers of primary metals typically all cost components are on Lifo. On the other hand, while some fabricating units apply Lifo to all cost components, others value only raw materials and the material content of processed goods on Lifo. The limitation of Lifo to raw materials and material content is associated with manufacturing units which have large numbers of end products — thereby complicating the task of putting all cost components on Lifo.

With the information at hand, $155 million appears to be a reasonable estimate of the Lifo inventories in our sample. This amount represents about 47% of the total inventories of the Lifo companies and about 27% of the total inventories of the companies in the sample. These percentage figures would be raised somewhat if two normal-stock companies, both with assets of over $100 million, were grouped with the Lifo companies, as would be appropriate for some purposes.[7]

There is some tendency for Lifo to be concentrated among the large companies although the method is more extensively used by

[6] As of December 31, 1947, The American Metal Company, Ltd., carried $13.6 million of its $23.4 million inventories on Lifo. The current market value of this $13.6 million was stated to be $19.8 million, exceeding the Lifo value by nearly 50%. Thus 58% of the company's inventories are on Lifo when no adjustment is made for the difference in price levels, but 67% when Lifo inventories are restated in terms of their current market values.

[7] Information is not available for these two companies as to the division between their normal stock and other inventories; hence specific adjustments in the above percentages have not been made.

TABLE 29. DATA ON COMPANIES ON LIFO IN 1947: NONFERROUS METALS

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
None							
10 – 50							
Calumet & Hecla Consolidated Copper Co.	$37,047	$8,908	24.0%	...	...	1947	Secondary copper — purchased, in process, or finished.
Copper Range Co.	16,692	3,076	18.4	...	...	1946	Metal contents of inventories, fabricating division.
General Cable Corp.	45,440	8,421	18.5	...	...	1939[a]	Copper and other materials in inventories.
Inspiration Consolidated Copper Co.	36,621	2,015	5.5	$944	46.8%	1936	Finished copper.
Miami Copper Co.	24,758	4,794	19.4	...	...	1947	Copper.
Rome Cable Corp.	11,387	3,658	32.1	3,483	95.2	1937	Raw mat., in process, & fin. goods.
Sullivan Mining Co.	10,742	1,333	12.4	...	...	1941[b]	Most metals inv. metals being $964,268 at 12/31/47.
Tennessee Corp.	28,596	6,860	24.0	...	...	1946	Certain inv. of subsidiary fabricating copper.

50 – 100							
American Metal Co., Ltd. (N.Y.)	$93,016	$23,417	25.2%	$13,577	58.0%	1938	Refined and in process metals (unsold).
Climax Molybdenum Co.	67,086	5,035	7.5	4,121	81.8	1946	Finished products.
Revere Copper & Brass, Inc.	51,019	20,033	39.3	12,967[c]	64.7[c]	1938	Metals included in cost of goods sold.
Scovill Manufacturing Co.	66,516	18,935	28.5	. . .	. . .	1939	Principal nonferrous metals.
100 – 500							
American Smelting & Refining Co.	$255,568	$77,253	30.2%	$35,097	45.4%	1935[d]	Major and secondary metals.
500 and over							
Anaconda Copper Mining Co.	$637,461	$92,927	14.6%	. . .	. . .	1935[e]	Finished metals held for sale or in process of fabrication.
Kennecott Copper Corp.	540,612	54,902	10.2	. . .	. . .	1939	Certain inventories of fabricating divisions.

[a] Extended to other materials in 1941.

[b] As reported in *Moody's*.

[c] Metals inventory only.

[d] Lifo extended to secondary metals in 1939.

[e] Use of Lifo first mentioned in report for 1935; Lifo probably used in prior years but not before 1933.

companies in the $10 to $100 million asset classes than is typical of most other industries. But none of the 20 companies with assets of less than $10 million is on Lifo.

Nine of the 15 Lifo companies had adopted Lifo by the end of 1939. This early adoption is not surprising since representatives of the industry campaigned actively for the authorization of Lifo for tax purposes. One company changed to Lifo in 1941, but the remaining five companies did not shift to Lifo until 1946 and 1947; the sharp increase in the price of copper with the removal of OPA controls in 1946 undoubtedly provided the stimulus for some of the postwar shifts.

Chemicals Companies

The 45 companies in this sample were taken from those listed under the heading "Chemicals" in *Moody's*. Twelve of the companies so listed were excluded because *Moody's* did not report their method of inventory valuation and corporate reports were not at hand for them, but all the remaining companies were included. Data were taken from corporate reports for 25 companies and from *Moody's* for 20 companies. Companies listed as engaged primarily in plastics were examined but not included since none were on Lifo. Likewise, paint and drug companies were not included in the chemicals sample; the Lifo companies in these industries were tabulated as miscellaneous manufacturing companies.

The Lifo companies, on the whole, revealed little information about their procedures. The value of Lifo inventories as of the end of 1947 was disclosed by only three of the ten Lifo companies, and for one of these companies this information was reported only in reports to the Securities and Exchange Commission (Table 30). For some of the other companies estimates as to the Lifo inventories have been based on such information as descriptions of the products on Lifo and the effect of Lifo on income and inventory values in the initial year. In some instances we have been able to check our estimates by field interviews. On the basis of this information, we estimate — subject to a wide potential error — that the Lifo inventories in our sample amount to about $125 million, or approximately 39% of the total inventories held by Lifo companies and 17% of the total inventories in the sample. Our interviews have included one company with all cost components on Lifo and others with only limited material costs on Lifo. We are not in a position to generalize as to which practice is more common.

As to numbers of companies, only 10 of 45 are on Lifo. Five of

TABLE 30. DATA ON COMPANIES ON LIFO IN 1947: CHEMICALS

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
None							
10 – 50							
Atlas Powder Co.	$33,654	$7,898	23.5%	...	...	1941	Certain major raw materials.
Commercial Solvents Corp.	37,554	6,465	17.2	...	...	1940	Molasses.
Newport Industries, Inc.[a]	14,967	1,982	13.2	$684	34.5%	1942	Finished products.
Pennsylvania Salt Manufacturing Co.	31,962	9,500	29.7	...	...	1943	Crude kryolith.
Tennessee Products & Chemical Corp.	10,411[a]	1,695[a]	16.3	...	29.1[b]	1941	Approximately 60% of finished goods and 39% of the raw materials.[b]
50 – 100							
None							
100 – 500							
American Cyanamid Co.	$206,619	$46,576	22.5%	$4,150	8.9%	1940[c]	Certain inventories.
Eastman Kodak Co.	359,846	91,058	25.3	...	...	1945	Silver bullion and silver content of work in process and finished goods.
Koppers Co., Inc.	101,507	19,514	19.2	...	...	1942[d]	Tar and tar products.
Monsanto Chemical Co.	153,112	27,765	18.1	11,760[a]	42.4	1942[e]	Greater part of all inv., excl. stores & supplies.
500 and over							
Union Carbide & Carbon Corp.	$649,109	$111,971	17.2%	...	...	1941	All United States inventories excluding supplies.

[a] As reported in *Moody's*. [b] At December 31, 1946. [c] Extended in 1941. [d] First mention in annual report of use of Lifo.

[e] Formally adopted Lifo in 1942; previously had used September 1, 1939, values at December 31, 1939, and 1940, and at December 31, 1941, lower of cost or market, less a reserve for decline in values.

eight companies (63%) with assets of over $100 million are on Lifo, but only five of 37 (14%) with assets of less than $100 million.

Eight of the ten companies on Lifo adopted the method from 1940 through 1942. One other shifted in 1943 and the tenth, Eastman Kodak Company, adopted Lifo for its silver and silver content inventories in 1945, when the price of silver rose sharply.

Paper and Pulp Companies

The 67 companies in this sample were selected from the 90 companies listed in *Moody's* under the heading "Paper and Pulp"; the remaining 23 companies were eliminated because their method of inventory valuation could not be determined. Data were taken from annual reports and prospectuses for 33 companies and from *Moody's* for 34.

Sixteen of the 67 companies are on Lifo; information on the value of their Lifo inventories as of 1947 is available for only six of the 16 companies, and is not complete for all these companies (Table 31). Several of the remaining companies did not disclose the value of their Lifo inventories either in 1947 or in the year in which Lifo was adopted. Two Lifo companies make no mention of the use of Lifo in their 1947 reports, although the adoption of the method was disclosed in reports of earlier years.

Although less than 25% of the companies are on Lifo, the Lifo companies held $164 million of the $404 million total inventories in the sample, about 41%. Pulpwood inventories are typically on Lifo. Some companies also have pulp and finished paper products on Lifo. The value of Lifo inventories is difficult to determine, but $75 million appears to be a reasonable estimate. Lifo is used by 50% of the companies with assets of over $50 million and by only 18% of the companies with assets of less than $50 million. Twelve of the 16 Lifo companies shifted to Lifo in 1941 and 1942.

Leather and Shoe Companies

The 34 companies in this sample were selected from the "Leather" and "Shoes — Manufacturing" classifications of *Moody's*. Data were taken from annual reports and prospectuses for 19 companies and from *Moody's* for 15. The combination of tanners and shoe companies has the disadvantage of grouping somewhat heterogeneous companies. Five of the nine companies which are primarily or exclusively tanners are on Lifo but only three of 25 shoe manufacturers.

The Lifo companies in this sample, on the whole, disclose more information than is characteristic of most other industries (Table

32). For five of the eight Lifo companies information is reported as to the 1947 value of Lifo inventories, and seven of the eight companies designate their Lifo products. None of the companies, however, discloses the current value of its Lifo inventories.

Approximately $44 million of the $74 million inventories of Lifo companies, 60%, are estimated to be on Lifo. As in the other samples, this percentage would be increased if the Lifo inventories were restated in 1947 prices, perhaps to as high a figure as 75%. The $44 million figure represents 22% of the total inventories in the sample. Endicott Johnson Corporation, with inventories of $32.4 million at the end of 1947, uses the normal-stock method; if part or all of its inventories were grouped with the Lifo inventories, the above percentages would be significantly increased. In general, leather companies apply the Lifo principle only to raw materials and the raw material components of their inventories; some shoe companies have part of their labor and overhead costs on Lifo.

Since many leather and shoe companies are small, our sample probably includes a smaller percentage of the total Lifo inventories than in most other industries. Also, differences in the use of Lifo by size classes are less clearly marked. Of the two companies with assets in excess of $50 million, one was on Lifo and the other used the normal-stock method. Three of the nine companies in the $10 to $50 million class used Lifo but only four of 23 companies with assets of less than $10 million.

Six of the eight Lifo companies adopted the method in 1941, the first year of substantial increases in hides prices after the authorization of the method for tax purposes. The seventh company changed over in 1942 and the last in 1947. Since OPA controls in this industry were continued through October, 1946, Lifo could be elected as late as October, 1947 (when the eighth company's taxable year ended), with substantial tax advantages in the year of election.

Lumber and Wood Products

The 18 companies in this sample were selected from the 29 United States companies listed under "Lumber and Wood Products" in *Moody's*. The 11 companies omitted were those for which no method of inventory valuation was given in *Moody's* and for which annual reports were not available. In only six instances were annual reports or prospectuses at hand to verify data obtained from *Moody's*.

Disclosure by Lifo companies is unusually incomplete (Table 33). So far as we have been able to determine, only one company has reported the value of its Lifo inventories and this information was available only in a prospectus. In contrast to the usual practice

TABLE 31. DATA ON COMPANIES ON LIFO IN 1947: PAPER AND PULP

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Munising Paper Co.	$3,959[a]	$1,999[a]	50.5%	...	86.0%[b]	1941	All ex. mfg. sup. & adv. on pulpwood.
Northern Paper Mills	8,228[a]	2,093[a]	25.4	$619	29.6	1941	Pulpwood.
Western Tablet & Stationery Corp.[a]	8,665	1,868	21.6	1,351	72.3	1941	Raw materials.
10 – 50							
Consolidated Water Power & Paper Co.[a]	$40,536	$8,088	20.0%	...	...	1942	Pulpwood.
Eastern Corp.	13,516	3,962	29.3	$1,406	35.5%	1941	Pulpwood.
Great Northern Paper Co.	49,269	8,807	17.9	1,655	18.8	1942	Pulpwood.
Hinde & Dauch Paper Co.	18,614	3,234	17.4	...	...	1941[c]	Inventories generally.
Nekoosa-Edwards Paper Co.[a]	19,119	5,391	28.2	...	...	1941	Pulpwood.
Oxford Paper Co.	41,552[a]	7,081[a]	17.0	...	...	1939	Principal raw materials.
Soundview Pulp Co.[a]	17,369	2,841	16.4	2,448	86.2	1943	Logs.

50 – 100							
Brown Co.	$54,014	$14,927	27.6%	. . .	31.9%[d]	1942	Pulpwood.
Kimberly-Clark Corp.	99,168	17,592	17.7	$8,282	47.1	1941	Pulpwood, raw mat., & supplies.
Mead Corp.	58,862	12,114	20.6	. . .	. . .	1941	Basic materials.
Minnesota & Ontario Paper Co.[a]	56,062	10,065	18.0	. . .	. . .	. . .	Pulpwood & supplies of parent company only.
West Virginia Pulp and Paper Co.	73,386	11,192	15.3	. . .	. . .	1942	Pulpwood, pulp and paper.
100 – 500							
International Paper Co.	$278,586	$52,653	18.9%	. . .	. . .	1936	Inventories generally.[e]

[a] As reported in *Moody's*. [b] At December 31, 1941. [c] First mention in annual report of use of Lifo. [d] At November 30, 1945. [e] 1947 report states: "Inventories at December 31, 1947 generally were priced as follows: quantities on hand at December 31, 1947, to the extent of quantities on hand at the beginning of the year were priced at the December 31, 1946 book cost, at cost for 1947 or the market value at December 31, 1947, whichever was lowest. Quantities on hand at December 31, 1947 in excess of those on hand at the beginning of the year were priced at cost for 1947 or at market value at December 31, 1947, whichever was lower. The same policy has been followed in each of the years since December 31, 1936 and is based generally on the 'last-in, first-out' theory of inventory valuation."

TABLE 32. DATA ON COMPANIES ON LIFO IN 1947: LEATHER AND SHOES

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Amalgamated Leather Cos., Inc.	$5,521	$2,352	42.6%	...[a]	...[a]	1941	Substan. all skins (raw or processed).
Northwestern Leather Co.	4,863[b]	1,829[b]	37.6	...	72.0%[c]	1941	Hides & hide content of in proc. inv.
Nunn-Bush Shoe Co.	6,213	2,579	41.5	$655	25.4	1947	Leather inventory in raw materials.
Ohio Leather Co.	5,688[b]	1,901[b]	33.4	...	...	1941	Raw mat. & raw mat. content of in process & finished leather.
10 – 50							
A. C. Lawrence Leather Co.	$21,273	$6,212	29.2%	$3,074	49.5%	1941	Hides & skins in raw materials, in process, & finished inventories.
Melville Shoe Corp.	28,786	7,648	26.6	6,106	79.8	1941	Not given.
United States Leather Co.	20,212	8,016	39.7	3,885[d]	48.5[d]	1942	Hides.
50 – 100							
None							
100 – 500							
International Shoe Co.	$108,730	$43,337	39.9%	$27,481	63.4%	1941[e]	Raw material (hides and leather), finished, and in process shoes.

[a] Raw skins on hand amounted to $702,000 (29.8% of total inventories) at December 31, 1947; raw material content of leather in process and finished leather not given.

[b] As reported in *Moody's*.

[c] At December 31, 1944.

[d] *Moody's* (quoting figures filed with S.E.C.).

[e] Lifo extended to finished and in-process shoes in 1942.

TABLE 33. DATA ON COMPANIES ON LIFO IN 1947: LUMBER AND WOOD

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Cascades Plywood Corp.[a]	$8,546	$1,020	11.9%	...	...	1947	Logs.
Richmond Cedar Works[a]	3,826	531	13·9	...	...	1942	Logs and lumber.
10 – 50							
Atlas Plywood Corp.	$19,371[b]	$4,841[b]	25.0%	...	74·3%[c]	1944	Logs and lumber.
Greif Bros. Cooperage Corp.	15,557	5,218	33·5	...	...	1942	Inventories principally on Lifo.
Hines (Edward) Lumber Co.[a]	19,905	4,317	21.7	...	...	1942	Not indicated.
50 – 100							
Long-Bell Lumber Co.	$50,060	$12,457	24·9%	...	...	1942	Pur. logs; lumber at manuf. plants.
100 – 500							
Weyerhaeuser Timber Co.	$195,148	$6,067	3·1%	...	...	1941	Logs, pulp, lumber at mills, & sub. all inv. at distributing yards.

[a] As reported in *Moody's*.

[b] At June 30, 1948.

[c] At March 31, 1947.

TABLE 34. DATA ON COMPANIES ON LIFO IN 1947: MISCELLANEOUS

Asset Size Classes (In millions)	*Total Assets (In thousands)*	*Total Inventory (In thousands)*	*Total Inventory as a Percentage of Total Assets*	*Lifo Inventory (In thousands)*	*Lifo Inventory as a Percentage of Total Inventory*	*Year Lifo Adopted*	*Products on Lifo*
0 – Under 10							
Jantzen Knitting Mills, Inc.[a]	$7,297	$2,968	40.7%	...	...	1942	Wool and mohair top.
Krueger (G.) Brewing Co.[a]	8,161	1,220	14.9	...	...	1942	Inventories based on Lifo method.
10 – 50							
*Carborundum Co.	$34,264	$14,069	41.1%	$8,839	62.8%	1947	Fin. prod. & w. i. p. at approx. cost at 12/31/46.
Cleveland Graphite Bronze Co.	19,308	5,478	28.4	...	.	1946[b]	Metal content of inventories.
Consolidated Cigar Corp.	26,516	18,167[c]	68.5	12,038	66.3	1942	Leaf tobacco.
Coty, Inc.	10,295	5,232	50.8	...	...	1940[d]	Certain materials — essential oils.
D W G Cigar Corp.[a]	12,099	7,194	59.5	...	...	1942	Leaf tobacco.
Falstaff Brewing Corp.	12,935	2,059	15.9	...	...	1942	Fin. prod., prin. raw mat. & supplies.
General Railway Signal Co.	14,496	4,993	34.4	4,403	88.2	1945	Main portion of inventories.
*Hercules Motors Corp.	13,949	5,072	36.4	5,072	100.0	1947[i]	Raw mat., fin. parts, prod. in pro. & fin.
Ludlow Mfg. & Sales Co.	33,785	12,491	37.0	...	...	1941	Raw fiber & fiber con., ex. raw mat. in India or products of Indian subsid.
*Maytag Co.	22,886	6,058	26.5	6,058	100.0	1946	All inventories.
Oneida, Ltd.[a]	15,418	5,609	36.4	...	...	1944	Silver.
Pittsburgh Screw & Bolt Corp.	13,924	4,398	31.6	3,812	...	1947	Fin. and semifin. prod. & raw mat.
Stanley Works	40,528	12,961	32.0	11,162	86.1	1943[e]	Not disclosed.
John B. Stetson Co.	17,122[a]	5,731[a]	33.5	...	...	1941	Fur in raw mat., w. i. p., and fin. goods.
Symington Gould Corp.[a]	10,051	2,195	21.8	...	...	1943	Noncontract fin. and semifin. stock at shop cost.
50 – 100							
American Brake Shoe Co.	$67,679	$14,770	21.8%	$4,670	31.6%	1941	Inventory of four of nine divisions (1945 report).

Anheuser-Busch, Inc.	73,472	13,995	19.0	...	...	1941	Raw mat., beer in process & bottles.
Armstrong Cork Co.	92,858	22,818	24.6	...	...	1940	Principal commodities including linseed oil.
General Tire & Rubber Co.	58,851	19,584	33.3	...	...	1941	Cotton & crude natural rubber — raw mat. & raw material content.
Glidden Co.	66,253	28,105	42.4	...	...	1941	Principal raw materials.
Johnson & Johnson	86,751	27,827	32.1	...	8.6[f]	1941	Raw cotton held by subsidiary.
National Supply Co.	85,513	30,143	35.2	11,343	37.6	1941	Items of resale merchandise (1941); tubular materials & prod. (1942).
100–500							
American Radiator & Standard Sanitary Corp.	$153,458	$36,243	23.6%	$8,957	24.7%	1941	Certain inv. of parent — raw mat. & prod. of its own manuf. (1941 report.)
*American Viscose Corp.	201,188	27,559	13.7	...	...	1947	Raw mat. — pulp & major chemicals charged to operations.
*Caterpillar Tractor Co.	122,410	48,860	39.9	48,860	100.0	1947	All inventories.
Continental Can Co., Inc.	206,830	69,365	33.5	...	...	1946	Certain raw mat. of a domestic subsid. (1946); extended to tin plate and certain other steel prod. for metal cans (1947).
†Crane Co.	129,411	34,982	27.0	33,807[g]	96.6	1941	All but special order products.
Pittsburgh Consolidation Coal Co.	147,367	20,991	14.2	11,870[h]	56.5[h]	1947	Coal generally.
*Pittsburgh Plate Glass Co.	206,671	51,496[i]	24.9	...	...	1947	Reduced inventories of flax, linseed oil, and bristle (not further processed) to basis equivalent to going on Lifo at Jan. 1, 1941.

[a] As reported in *Moody's*. [b] For silver only, 1943. [c] Includes tobacco in process of packing and expenditure on 1948 crop. [d] Extended to additional items in 1941. [e] First mention in annual report of use of Lifo. [f] At December 31, 1944. [g] Lifo and Lifo-equivalent basis. [h] Coal inventory. [i] Utilized previously appropriated reserves to reduce certain items to a Lifo-equivalent basis. * Lifo-equivalent (nontax) application. † Partly Lifo-equivalent (nontax) application.

four of the seven Lifo companies did not even disclose the effect of adopting Lifo, as compared with the basis of valuation previously used. No company indicated the 1947 replacement values of its Lifo inventories.

Seven of 18, or 39%, utilized Lifo; this rather high proportion is in part attributable to the deficiency of small companies in the sample; $34 million, or 53% of the total inventories of $65 million, were held by the Lifo companies. Practically no information is available on which to estimate the Lifo inventories of the seven Lifo companies; for our statistical estimates we have arbitrarily assumed that they amount to $17 million, or 50% of the inventories of these seven companies.

The companies in this sample were slow to adopt Lifo, six of the seven making the shift after 1941.

Miscellaneous Manufacturing Companies

Thirty-one Lifo companies in industries in which Lifo is not extensively used have been tabulated separately. All manufacturing companies known to be on Lifo and not in the individual industry samples have been included in this tabulation. The Lifo inventories of these companies are estimated at $275 million out of total inventories of $563 million — a rather high percentage on Lifo.

Several characteristics of this miscellaneous tabulation distinguish it from the preceding industry samples. First, the degree of disclosure is more complete than is customary in most industries. Thirteen of the 31 companies disclose the value of their 1947 Lifo inventories, but five of these adopted Lifo in 1947 (Table 34). Six companies, apart from these seven, disclose the difference between the book value and 1947 replacement costs of their Lifo inventories. Secondly, 10 of the 31 companies adopted Lifo in 1946 and 1947, an unusually high percentage. Thirdly, six of the companies made the shift in their published reports but did not elect Lifo for tax purposes. All these companies changed to Lifo in 1946 and 1947; presumably they believed prices were too high to justify an election of Lifo for tax purposes. These six companies are estimated to hold about $90 million of Lifo inventories.

Department Stores

Tabulations made for us by the Bureau of Business Research of the Harvard Business School show that 45 companies operating department stores[8] were on Lifo as of January 31, 1948. To the best of our knowledge this tabulation includes most department stores using Lifo. These stores held Lifo inventories carried at $251 million as of January 31, 1948, out of total inventories of $283 million. Even when valued on a Lifo basis, 88% of the total inventories of these firms were on Lifo. The Lifo inventories when restated on the usual retail method (as is possible for department stores) amounted to $341 million, or about 36% more than their Lifo values.

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[8] The term *department stores* is here used in a general sense to include specialty stores not considered department stores in the strict sense by those in the trade.

Since prices of department store inventories have risen, on the average, considerably less than those of manufacturers' inventories, this figure of 36% is useful in setting a floor to any estimate of the probable difference between Lifo values and current values of Lifo inventories in general as of the end of 1947. Our statement earlier in this chapter that the current values of all Lifo inventories held by manufacturers in 1947 probably exceeded their Lifo values by at least 50% is strongly supported by these data on department stores.

The 45 firms in the above totals include 37 firms which have filed continuously on Lifo since 1941 as indicated in stockholder reports and other sources; six other firms not on Lifo continuously since 1941 but which now file on that basis; and two firms which plan to file on Lifo but have not yet published records on that basis. Four other firms once filed on Lifo but have discontinued the method since 1941 and are not known to have resumed it; these firms, of course, are not included in the above data. While we cannot be certain, it seems highly probable that the 45 Lifo companies hold almost all department store inventories on Lifo. Sales data which are useful for industry comparisons show that these companies had total net sales of $2.9 billion for the year ending January 31, 1948 (or nearest thereto), approximately $2.6 billion of which represented sales of divisions on Lifo.

Appendix B

Comparison of Carry-Back Provisions and Wartime Inventory-Reserve Proposal

THE problem of how to treat inventory profits takes on special characteristics in a period of heavy war taxation levied presumably for a short span of years. Under these conditions it is especially important that taxable income be correctly defined; otherwise gross discriminations between taxpayers would occur and the capacity of many companies to contribute to wartime production and the post-war reconversion might be seriously impaired. The Treasury Department and Congress were acutely conscious of these dangers during World War II. Various inventory-reserve proposals were then considered for adoption; one was even tentatively approved by the House Ways and Means Committee in its deliberations on the Revenue Act of 1942. But this act as finally passed substituted the two-year carry-backs of net operating losses and unused excess profits credits for both inventory and other reserves which had been under discussion.

The consideration given to inventory reserves and their relationship to the carry-back provisions are examined in this appendix. An examination of the problems encountered in setting up such reserves should be useful both as a summary of a significant historical episode and for the guidance that it may give in the event of another war mobilization. Also, a review of the operating problems which would be encountered in any general use of inventory reserves should help to illustrate the types of problems that would be encountered in putting into effect related proposals that taxpayers should be allowed to claim depreciation charges computed in terms of current price levels. If nothing else is accomplished, the following discussion should illustrate the complexities that would be involved in putting even a relatively simple plan based on price indexes into practical operation.

TREASURY INVENTORY-RESERVE PROPOSAL

On June 15, 1942, Mr. Randolph E. Paul presented the Treasury proposal for deductible inventory reserves to the House Ways and

Means Committee. This proposal had been worked out by the Treasury staff during the preceding six months or so in conference with other government agencies and various business groups. Department store representatives, in particular, followed the development of the reserve proposal closely and agreed to drop their efforts to have Lifo made available to them if the reserve proposal was enacted by Congress. As a matter of fact, the proposal resembled closely the current application of Lifo to department stores, except that it was to be of temporary duration.

To present the flavor of the Treasury thinking on this problem and also the general nature of its proposal, portions of Mr. Paul's statement are quoted:

> The enactment of high corporate tax rates necessitated by the war makes the correct determination of the income to which these rates are applied of fundamental importance. Under the present treatment of inventories for tax purposes, in periods of rising prices taxable income may include profits that result merely from the increase in the value of the inventory on hand. Such profits are not available for the payment of taxes and may be wiped out by subsequent price declines.
>
> . . . . .
>
> Congress has already recognized the importance of this problem by granting taxpayers permission to use the elective, last-in first-out method of valuing inventories. This method in general excludes book profits on inventories from taxable income. However, many taxpayers are unable to use the last-in first-out method, particularly taxpayers whose inventory consists of a large number of different products rather than a few homogeneous products.
>
> The Treasury believes that during the uncertainties of the war period all taxpayers, and not only those who are able to use the last-in first-out method, should be safeguarded against the inclusion of book inventory profit in taxable income.
>
> The problem of fluctuating inventory values would be more serious were it not for the price ceilings recently imposed. To the extent that price ceilings are effective in keeping prices at their present level, future book profits on inventories will be absent. However, even with effective price ceilings, certain problems still remain.
>
> . . . substantial price rises may occur after the end of the war when the ceilings may be relaxed. By providing for these contingencies now, Congress can give taxpayers the assurance that an attempt is being made to impose the heavier taxes occasioned by the war in a fair and equitable manner. Taxpayers will

then be able to adjust their inventory policy to the needs of the war program without regard to tax considerations.

The Treasury therefore proposes that taxpayers be permitted to establish temporary reserves for possible future inventory losses, these reserves to be deductible in computing taxable income. The maximum amount to be added to the reserve in a year of rising prices, and hence to be deductible in computing income for that year, will be equal to the approximate amount by which price inflation has increased the value of the basic inventory during the year. Similarly, in a year of declining prices, the taxpayer would be required to subtract from his reserve, and hence to include in his income, the approximate amount by which price deflation has reduced the value of his basic inventory during the year. . . .

Period to be covered

Under the plan proposed taxpayers would be permitted to set up reserves for the period beginning January 1, 1941, and ending five years after the close of the war. It is proposed that the reserve be applied retroactively to 1941 because of the substantial price increases which occurred in that year. Similarly, the reserve should remain in effect long enough after the war to include post-war adjustments. . . .

Taxpayers eligible to use reserves

The use of reserves would be permitted to all taxpayers with inventories of real goods, as distinguished from the portfolios of financial institutions. Taxpayers would be permitted to use the reserves for inventories not valued under the elective, last-in first-out, method.

Inventories to be covered by the reserve

The taxpayer would not be required to use the reserve method for his whole inventory. He would be allowed to elect the reserve method for selected parts of his inventory, provided that they are clearly identifiable. The election, once made, could be revised only with the approval of the Commissioner of Internal Revenue.

Additions to and subtractions from the reserve

When prices rise, taxpayers would be permitted to add to the reserve the approximate inventory profits. . . .

In years when prices decline, taxpayers would be required to charge the reserve with the *full* amount of the approximate inventory loss. Such charges to the reserve could not exceed the credit balance in the inventory reserve.

> *Computation of approximate amount of profit or loss*
>
> The approximate amount of profit or loss would be determined by multiplying the basic inventory by the estimated change in prices during the year. The basic inventory will be taken as equal to the smaller of the physical inventories on hand at the beginning and the end of the year. . . .
>
> The estimated change in prices will be determined by the use of specified price indexes. The coverage of the price indexes would conform as closely as possible to the actual inventory of the taxpayer and their selection and application would be subject to the approval of the Commissioner of Internal Revenue.
>
> Taxpayers would have the option of computing inventory profits and losses for the entire inventory as a unit or for narrower classes of inventory goods. The election made by the taxpayer would be subject to change only upon approval by the Commissioner.
>
> *Liquidation of part of the inventory*
>
> If any part of the inventory is liquidated, the reserve against this part of the inventory would be credited to income.
>
> *Termination of reserves*
>
> The reserves may be terminated either by the exhaustion of the accumulated reserves or by the legal expiration of the reserve provision, that is, five years after the close of the war.
>
> If the reserve is exhausted by price declines or inventory liquidations, no further use of the reserve method would be permitted.
>
> If the reserve is terminated by legal expiration, any amounts remaining in the reserve would be returned to income, since the purpose of the reserve is solely to safeguard the taxpayer from the inclusion in his taxable income of profits arising from temporary price rises. In order to prevent a severe drain on cash resources in the event of a possible heavy tax on large unused reserves, taxpayers could be permitted to distribute the payment of the tax liability attributable to the unused reserves over the three years subsequent to the termination of the reserve.
>
> The proposed inventory reserve will prevent in substantial measure the taxation of inventory profits destined to be wiped out in the next few years. At the same time it will not permit profits from a permanent rise in values to escape taxation.[1]

As noted above, this proposal was approved in principle by the House Ways and Means Committee, but it was not incorporated into the actual bill submitted to the House by the Committee because of drafting problems which would have delayed the bill's progress. During the Senate consideration of the bill various groups pressed for other special reserve allowances, e.g., deferred maintenance and postwar reconversion costs. For a time serious thought was given to an "omnibus" reserve proposal that would segregate a portion of net income against which a variety of items including inventory losses from price declines could be charged. Eventually, however, the Senate Finance Committee abandoned all special reserve proposals in favor of the carry-back provisions.

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[1] Quoted from a mimeographed statement prepared by the Treasury Department.

The relative merits of the carry-backs and the inventory-reserve proposal are discussed below; first, however, some of the problems underlying the Treasury reserve proposal need additional explanation.

POLICY PROBLEMS WHICH WOULD HAVE ARISEN IN IMPLEMENTING THE TREASURY'S INVENTORY-RESERVE PROPOSAL

Goods To Be Covered by Reserve

No further comment is needed on the period to be covered by the reserve or the taxpayers that should be eligible to use it, but the question of the specific inventories to be covered is more complicated. Despite the Treasury intention to make the reserve available as generally as possible, certain special categories of inventories obviously would have to be excluded from the operation of such a reserve. Among these categories are:

(1) Goods inventoried on Lifo;
(2) Goods hedged in a futures market;
(3) Goods not acquired for sale or to become a part of merchandise intended for sale;
(4) Financial securities; and possibly
(5) Goods held for delivery on firm sales contracts.

The Commissioner should be given power to disallow the reserve if it were applied to inventories falling in these categories or to goods valued by other unusual methods which clearly would not result in inventory profits.

To take up the above categories in order, reserves obviously should not be set up against goods valued on Lifo since the reserve would be designed to have essentially the same short-term effect as Lifo. For the same reason reserves should not be set up against inventories hedged in a futures market. To the extent that price fluctuations are cancelled out by hedging operations, the effect of these fluctuations on the income reported by the taxpayer is eliminated. So far as income determination is concerned, hedging is closely similar to Lifo in its effects, and the use of an inventory reserve would be equally inappropriate in both instances.

Goods not acquired for sale or to become a part of merchandise intended for sale may not be included in inventories in the determination of taxable income. Consequently, inventory reserves should not be established against such goods.

The reserve obviously would be appropriate only for real inventories and not for financial securities.

The most perplexing problem in delimiting the scope of the reserve would arise in connection with goods held for delivery on firm sales contracts. The regulations governing the use of the lower-of-cost-or-market method prohibit its application to . . . "goods on hand or in process of manufacture for delivery upon firm sales contracts (i.e., those not legally subject to cancellation by either party) at fixed prices entered into before the date of the inventory, under which the taxpayer is protected against actual loss, . . ."[2] As noted in Chapter VII, this regulation conforms to good accounting practice, since it is generally considered improper to write goods down from cost to market when no loss will be sustained because of the decline in market.

It could reasonably be contended that to set up an inventory reserve against inventory profits on such merchandise would also be improper. Inventory profits on goods purchased to fulfill firm sales contracts involve no danger of loss; consequently, reserves against such goods could be regarded as unnecessary. If this position was taken, it presumably would exclude most inventories of war contractors from the reserve whether these contractors were operating under cost-plus-fixed-fee or fixed-price contracts. Under cost-plus-fixed-fee contracts, the taxpayer is reimbursed for expenditures by the government, and it is perhaps even doubtful that goods purchased to fulfill such contracts should be inventoried at all for tax purposes. While goods purchased for delivery on fixed-price contracts clearly must be inventoried, these contracts are usually consummated before the goods to fill them are acquired, and at the end of the year unfilled orders ordinarily would more than cover the goods in the inventory. (These statements are relevant, of course, only to contracts not subject to cancellation without reimbursement to the taxpayer for expenses already incurred.) If the inventory reserve was regarded solely as a means of protecting the taxpayer against the taxation of temporary profits later to be wiped out by price declines, the propriety of excluding goods held for delivery on firm sales contracts from the inventory reserve would be unassailable. If, however, the reserve was regarded partly as a means of assigning income to a different accounting period for tax purposes, this conclusion would be more dubious because inventory profits on firm sales contracts are unrealized in the same sense as any other inventory profits. The question as to the treatment of such inventory profits involves essentially the same points discussed in Chapter VI in connection with the applicability of Lifo to situations in which sales prices are clearly set in relation to original rather than replacement costs.

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[2] Regulations 111, Sec. 29.22(c)-4.

Additions to and Subtractions from the Reserve

Once the inventories to be covered by the reserve are determined, the major remaining problem would be that of deciding the criteria by which additions to and subtractions from the reserve should be made. In working out the necessary procedures, numerous compromises would have to be made between the demands of administrative simplicity and those of theoretical precision. The general preference of the Treasury when its plan was proposed was to regard administrative simplicity as the more important objective. Since the plan was to be temporary, the Treasury was willing to accept rough approximations; Treasury officials realized that any errors would be largely offset when the reserve was terminated.

To illustrate the nature of the conflict between simplicity and precision, the following discussion first describes a simplified method of computing changes in the reserve, after which the complexities involved in achieving a greater degree of precision are considered. The first step under either approach would be to obtain a measurement of the percentage price change that has affected the inventory values used in computing taxable income. Inasmuch as the reserve would be used by taxpayers with heterogeneous inventories as well as by those with inventories consisting mainly of a few homogeneous commodities, it would not be feasible to use the taxpayer's actual records of prices paid for individual items in his inventory to determine the percentage price changes in his inventory goods. General index numbers would have to be employed. Their use would mean that additions to and subtractions from the reserve would necessarily be only rough approximations of the theoretically "correct" adjustments. This fact was one of the main reasons causing the Treasury to prefer a *temporary* reserve to take care of the problems resulting from wartime price fluctuations, rather than a general extension of Lifo.

The Commissioner of Internal Revenue, or some other government authority, would have to make the necessary price indexes available to taxpayers. The burden on the Bureau of Internal Revenue and on the taxpayer would be minimized if a few indexes representing broad commodity groups were used rather than many narrowly classified indexes. Manifestly, the smaller the number of price indexes authorized by the Bureau, the simpler would be the mechanics of handling the reserve; but this simplicity would be gained at the expense of accuracy.

Once the price indexes are selected, the simplest feasible plan for computing changes in the reserve consistent with the preservation of reasonable fairness would necessitate the following steps, which are illustrated in Table 35:

Credits to or charges against reserve because of price rise or decline in basic inventory

(i) The taxpayer would classify his inventory into classes

TABLE 35. EXAMPLE OF COMPUTATION OF CREDIT TO INVENTORY RESERVE UNDER SIMPLIFIED PLAN

Inventory Classifications	*Value of Beginning Inventory* (1)	*Ratio End-Year Prices to Beginning-Year Prices* (2)	*Value of Beginning Inventory at End-Year Prices* (1) × (2) (3)	*Value of Ending Inventory* (4)
A	$10,000	115	$11,500	$11,000
B	15,000	110	16,500	16,000
C	20,000	112	22,400	22,000
Total	$45,000		$50,400	$49,000

(5)	Total of column (3) minus total of column (1)	$5,400*
(6)	Ratio total of column (4) to total of column (3)	.9722
(7)	Maximum allowable credit to reserve: item (5) × item (6)	$5,250†
(8)	Amount of liquidated inventory: total of column (3) minus total of column (4)	$1,400
(9)	Ratio of item (8) to total of column (3)	.0278
(10)	Reserve at beginning of taxable year (assumed)	$5,000
(11)	Charge against reserve because of inventory liquidation: item (9) × item (10)	139
(12)	Net credit to reserve after charge against reserve because of inventory liquidation: item (7) minus item (11)	$5,111

* If the total of column (3) were smaller than the total of column (4), item (5) would represent the maximum allowable credit to the reserve.

† Exclusive of charges against reserve for liquidated inventories.

as comparable as possible with those for which price data were made available.

(ii) For each such class, the taxpayer would multiply the value of the inventory at the beginning of the year by an index representing the corresponding price change.

(iii) The sum of these items would give the value of the beginning inventory at end-year prices.

(iv) If item (iii) was less than the actual value of the ending inventory, the physical inventory at the beginning of the year would be treated as smaller than the physical inventory at the end of the year. The difference between (iii) and the value of the beginning inventory would then be the credit to or charge against the reserve. If the difference was positive, it would represent the maximum allowable credit. The taxpayer would be permitted to take this amount or a smaller credit if he so desired. If the difference was negative, it would represent a charge against the reserve and the taxpayer would be required to charge the reserve by the full amount.

(v) If item (iii) was larger than the actual value of the ending inventory, the physical inventory at the end of the year would be treated as smaller than the physical inventory at the beginning of the year. The credit to and charge against the reserve as computed in (iv) would therefore be reduced by the ratio of the ending inventory to item (iii), in order to make the credit or charge apply to the smaller of the beginning or ending inventory.[3]

Charges against reserve for liquidated inventories

(i) If as in step (v) above, the ending inventory is less than the beginning inventory valued at end-year prices, the taxpayer would be regarded as having liquidated some part of his inventory.

(ii) The difference between these two items expressed as a percentage of the larger of the two would be the percentage of the inventory liquidated.

(iii) The charge against the reserve would be a corresponding percentage of the reserve set up in preceding years, that is, of the reserve as of the beginning of the year.

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[3] The method described estimates the relative sizes of the beginning and ending physical inventories by stating the beginning inventory at end-year prices. The policy of adjusting the ending inventory to beginning-year prices would be equally defensible. The two methods would yield identical results if only one, and the same, price index was used to adjust the beginning or ending inventory. If several indexes were used for different portions of the taxpayer's inventory, different results would be obtained in the event of changes in the physical composition of the beginning and ending inventories. Changes may be in either direction, however, and there is no clear basis for preferring an adjustment of either the beginning or ending inventory because of this source of possible divergence in the results.

> *Charges against reserve on termination of plan*
>
> Since the Treasury proposal was designed to provide relief only for temporary price rises during the war period and its immediate aftermath, it was provided that amounts remaining in the reserve at its legal expiration should be returned to taxable income. The simplest procedure would be to include the full balance in the reserve in the taxable income of the year of expiration. A more complicated, but perhaps logically preferable, method would be to allocate the balance in the reserve to the years when the reserve was built up in proportion to the size of the annual credits to the reserve, and to tax these allocations at the rates then in force.

The reason for the Treasury recommendation that the taxpayer not be *required* to credit the reserve by the maximum amount allowable because of a price increase perhaps should be explained. Circumstances might arise in which the full credit would be to the disadvantage of the taxpayer. For example, the full credit might completely absorb the taxpayer's net income and cause him to report a deficit. He then would receive no tax benefit from the portion of the credit which would reduce his taxable income below zero, except through the carry-over and carry-back provisions. In future years, however, he would be required to return the amount set up in the reserve to taxable income, even though he might have received no tax benefit from it. The taxpayer might also prefer to forego part of an allowed credit if he anticipated a subsequent inventory liquidation in years of higher tax rates. For reasons such as these the Treasury suggested that the taxpayer be permitted to take less than the full credit. But in no event would the taxpayer be allowed to credit his reserve in any one year by more than his maximum allowable credit for that year, regardless of the fact that he might not have elected to avail himself of his maximum allowable credit in previous years. In periods of falling prices or in the event of an inventory liquidation the full charge to the reserve would be mandatory.

This simplified version of the reserve would involve many crude approximations to the theoretically desired adjustment to income. If a more precise procedure was desired, the first step would be to match inventories and price indexes more closely. A much larger and more finely classified list of indexes would be needed and inventories would have to be classified into more numerous groups.

Another possible refinement would be to use a more elaborate mathematical formula in measuring the price change between the beginning and ending inventories. Since the ending inventories of some taxpayers would be markedly different from their beginning inventories, especially in a period of conversion to or from war production, the specific formula chosen might significantly affect the results. In the simple plan illustrated by Table 35 statistical precision would be sacrificed to administrative simplicity; the indexes would be weighted solely by the beginning inventory quantities. A more refined method would take into account shifts in the inventory goods held, perhaps by using the geometric mean of the indexes of price change during the year, with the indexes weighted by the beginning and ending inventories, respectively.

Another difficult statistical problem would be the determination of the precise date at which the inventories should be regarded as valued in selecting the price indexes to be used. Except in periods of declining prices inventories ordinarily are not valued at market prices as of the end of a taxable year, but rather at cost prices as of a somewhat earlier date — the specific date depending on the rate of turnover of the inventory and the method of valuation employed. When Fifo is used, allowance for this fact can be made with relative ease, since the average age of inventories is not likely to be great and the dispersion about this age relatively small. With an inventory turnover of, say, three times a year, the average age of the inventory on hand would be about two months. Thus, if the taxable year was to end on December 31, the price index should be read at its value as of the end of October. Under average-cost methods, however, the difficulties would be more serious since inventories acquired over a considerably longer period of time would affect the valuation, and prices as of a single date selected by reference to the average age of the inventory for valuation purposes might not be representative of the prices actually used in valuing the inventory.

In the simple plan illustrated in Table 35 the entire problem of the age of inventories is ignored; in effect, inventories are assumed to be valued as of the end of the year. The error introduced by this procedure would depend largely on the degree of divergence in price movements in the months immediately preceding the beginning and end of the taxable year. As a practical matter, even though errors might be moderately large in individual years, they would tend to cancel out over a period of several years.

It would, however, be possible to estimate the average age of each category of inventory for valuation purposes, and to make allowance therefor in determining the dates at which index numbers should be taken for the purpose of removing the element of price change from inventory values. Computations based on this more refined technique, along with the other refinements here discussed, are illustrated below in Tables 36 and 37. Since the necessary computations are shown in detail in the tables they need not be explained. In general, the method illustrated in Tables 36 and 37 differs from the simplified plan previously summarized in that: (1) price indexes would be applied to more detailed inventory classes; (2) the average age of inventories would be taken into account in determining the proper months for which the index numbers should be read; and (3) the formula for determining the average price change would be

TABLE 36. EXAMPLE OF COMPUTATION OF INVENTORY RESERVE UNDER REFINED PLAN, WITH NO INVENTORY LIQUIDATION DURING YEAR

	Beginning Inventory			
Commodities or Commodity Classes Held in Inventory at Beginning and End of Year	*Value of Inventory on Jan. 1, 1941*	*Average Age of Inventory if Inventory Is Not at Current Market Price (in months)*	*Price Indexes Representative of 2)*	
			Date	*Index*
(1)	(2)	(3)	(4)	(5)
Commodity A	$ 5,000	0.75	Dec.	100
B	10,000	1.50	Nov.	110
C	15,000	1.25	Nov.	105
D	10,000	2.25	Oct.	85
E	5,000	1.75	Nov.	110
F	10,000	1.25	Nov.	100
G	7,000	2.00	Oct.	95
H	...	...	...	90
Total	$62,000			

	Ending Inventory			
Commodities or Commodity Classes Held in Inventory at Beginning and End of Year	*Value of Inventory on Dec. 31, 1941*	*Average Age of Inventory if Inventory Is Not at Current Market Price (in months)*	*Price Indexes Representative of (6)*	
			Date	*Index*
	(6)	(7)	(8)	(9)
Commodity A	...	...	...	150
B	$ 5,000	1.25	Nov.	140
C	10,000	1.50	Nov.	130
D	15,000	1.75	Nov.	100
E	15,000	2.25	Oct.	105
F	20,000	1.50	Nov.	108
G	10,000	1.75	Nov.	110
H	8,000	2.00	Oct.	95
Total	$83,000			

TABLE 36 (*continued*) EXAMPLE OF COMPUTATION OF INVENTORY RESERVE UNDER REFINED PLAN, WITH NO INVENTORY LIQUIDATION DURING YEAR

Commodities or Commodity Classes Held in Inventory at Beginning and End of Year	*Ratio: Prices at Which Ending Inventory Valued to Prices at Which Beginning Inventory Valued* (*9*) ÷ (*5*) (10)	*Beginning Inventory Valued at End-Year Prices* (*2*)×(*10*) (11)	*Ending Inventory Valued at Beginning-Year Prices* (*6*) ÷ (*10*) (12)
Commodity A	150.00	$ 7,500	. . .
B	127.27	12,727	$ 3,929
C	123.81	18,572	8,077
D	117.65	11,765	12,750
E	95.45	4,773	15,715
F	108.00	10,800	18,519
G	115.79	8,105	8,636
H	105.56	. . .	7,579
Total		$74,242	$75,205

(13)	Index of price change, weighted by beginning inventory (Total of column 11 ÷ Total of column 2)	119.75
(14)	Index of price change, weighted by ending inventory (Total of column 6 ÷ Total of column 12)	110.37
(15)	Geometric mean of weighted indexes of price change ($\sqrt{\text{Item 13} \times \text{Item 14}}$)	114.96
(16)	Ending inventory, valued at beginning inventory prices (Total of column 6 ÷ Item 15)	$72,199
(17)	Smaller of beginning and ending physical inventory (Smaller of column 2 or Item 16)	$62,000
(18)	Amount of maximum allowable credit to or required charge against reserve exclusive of charges against reserve because of inventory liquidation (Item 17 times 14.96% from Item 15)	$9,275
(19)	Value of liquidated inventory (Total column 2 minus Item 16) (If Item 19 is negative, enter zero)	000
(20)	Ratio of value of liquidated inventory to value of beginning inventory (Item 19 ÷ Total of column 2)	000
(21)	Product of Item 20 and net credit in inventory reserve account accumulated in previous years	000
(22)	Maximum allowable credit to or required charge against reserve (Item 18 minus Item 21) (maximum allowable credit if Item 22 positive; required charge if Item 22 negative)	$ 9,275

based on an index number taking account of the composition of the inventory as of both the end and the beginning of the year.

The plan here outlined could be used by taxpayers employing the retail method of inventory valuation as well as by taxpayers on other methods. Taxpayers on the retail method would first value their inventories on the customary retail method and then apply to the "cost" value of their inventories indexes representing the price change of their inventories valued at cost rather than at retail.

If greater precision was desired, however, it would be possible to integrate the computation of the reserve with the retail method of inventory valuation. The procedure would be closely similar to that currently employed by department stores on Lifo, and consequently it need not be illustrated in detail.

Numerous variations could, of course, be introduced into the reserve plans here explained. The above plans are intended merely

Table 37. Example of Computation of Inventory Reserve under Refined Plan, with PARTIAL Inventory Liquidation during Year

	Beginning Inventory			
			Price Indexes Representative of (2)	
Commodities or Commodity Classes Held in Inventory at Beginning and End of Year (1)	*Value of Inventory on Jan. 1, 1942* (2)	*Average Age of Inventory if Inventory Is Not at Current Market Price (in months)* (3)	*Date* (4)	*Index* (5)
Commodity A	...	...	...	...
B	$ 5,000	1.25	Nov.	140
C	10,000	1.50	Nov.	130
D	15,000	1.75	Nov.	100
E	15,000	2.25	Oct.	105
F	20,000	1.50	Nov.	108
G	10,000	1.75	Nov.	110
H	8,000	2.00	Oct.	95
Total	$83,000			

	Ending Inventory			
			Price Indexes Representative of (6)	
Commodities or Commodity Classes Held in Inventory at Beginning and End of Year	*Value of Inventory on Dec. 31, 1942* (6)	*Average Age of Inventory if Inventory Is Not at Current Market Price (in months)* (7)	*Date* (8)	*Index* (9)
Commodity A	...	...	...	...
B	...	1.50	Nov.	135
C	$ 8,000	1.25	Nov.	135
D	12,000	1.50	Nov.	118
E	15,000	2.00	Oct.	120
F	21,000	1.75	Nov.	125
G	11,000	1.75	Nov.	105
H	9,000	2.25	Oct.	100
Total	$76,000			

TABLE 37 (*continued*) EXAMPLE OF COMPUTATION OF INVENTORY RESERVE UNDER REFINED PLAN, WITH PARTIAL INVENTORY LIQUIDATION DURING YEAR

Commodities or Commodity Classes Held in Inventory at Beginning and End of Year	*Ratio: Prices at Which Ending Inventory Valued to Prices at Which Beginning Inventory Valued* (*9*) ÷ (*5*) (10)	*Beginning Inventory Valued at End-Year Prices* (*2*) × (*10*) (11)	*Ending Inventory Valued at Beginning-Year Prices* (*6*) ÷ *10*) (12)
Commodity A	...	...	...
B	96.43	$ 4,822	...
C	103.85	10,385	$ 7,703
D	118.00	17,700	10,169
E	114.29	17,144	13,125
F	115.74	23,148	18,144
G	95.45	9,545	11,524
H	105.26	8,421	8,550
Total		$91,165	$69,215

(13)	Index of price change, weighted by beginning inventory (Total of column 11 ÷ Total of column 2)	109.84
(14)	Index of price change, weighted by ending inventory (Total of column 6 ÷ Total of column 12)	109.80
(15)	Geometric mean of weighted indexes of price change ($\sqrt{\text{Item 13} \times \text{Item 14}}$)	109.82
(16)	Ending inventory, valued at beginning inventory prices (Total of column 6 ÷ Item 15)	$69,204
(17)	Smaller of beginning and ending physical inventory (Smaller of column 2 or Item 16)	$69,204
(18)	Amount of maximum allowable credit to or required charge against reserve, exclusive of charges against reserve because of inventory liquidation (Item 17 times 9.82% from Item 15)	$ 6,796
(19)	Value of liquidated inventory (Total column 2 minus Item 16) (If Item 19 is negative, enter zero)	$13,796
(20)	Ratio of value of liquidated inventory to value of beginning inventory (Item 19 ÷ Total of column 2)	.1662
(21)	Product of Item 20 and net credit in inventory reserve account accumulated in previous years (Credit of $9,275 from Item 22, Table 36)	$ 1,542
(22)	Maximum allowable credit to or required charge against reserve (Item 18 minus Item 21) (maximum allowable credit if Item 22 positive; required charge if Item 22 negative)	$ 5,254

to illustrate the general nature of the problems involved in putting inventory reserves into actual operation.

DESCRIPTION OF CARRY-BACK PROVISIONS

As a preliminary to comparing the relative merits of the carry-back and inventory-reserve techniques for mitigating the inequities and other harmful effects of including inventory profits in a wartime tax base, the carry-back provisions are briefly described.

These provisions, as enacted in 1942, authorized a two-year carry-back of net operating losses and unused excess profits credits. It was provided that if a net operating loss was incurred in any taxable year beginning after December 31, 1941, it could be carried back and offset against income earned in the two preceding years. Losses were to be carried back first to the second preceding year and then to the immediately preceding year. In each year, losses were to be offset first against taxable excess profits and then against normal profits. The entire income of the earlier year was to be absorbed before the unused loss balance could be offset against income earned in the immediately preceding year. If any taxable excess profits remained after the loss carry-back adjustment, the unused excess profits credit could be carried back and offset against such excess profits, with the unused credit being carried back first to the second preceding year and then, that portion not used, to the immediately preceding year. If the net operating loss or the unused excess profits credit were not exhausted by income and excess profits of the two preceding years, the unused balance could be carried forward to the two succeeding years. Any taxes paid or payable on income or excess profits offset by the carry-back or carry-over provisions would be refunded or cancelled. In effect, this combination of the carry-back and carry-over provisions provided a five-year averaging period for the determination of wartime excess profits and income taxes.

Since 1942 two important changes have been made in the carry-back provisions.

First, along with the repeal of the excess profits tax as of the end of 1945, it was provided that the unused excess profits credits be repealed for taxable years beginning after December 31, 1946. To cover unused credits arising in 1946 the provisions of the excess profits tax were retained for one year beyond the repeal of the tax. The two-year loss carry-back still remained in 1949 as part of the tax law, though there has been considerable discussion of the advisability of repealing it or of shortening it to one year in connection with a lengthening of the carry-over period.

Secondly, the Tax Adjustment Act of 1945 overcame one of the serious defects of the carry-back provisions by permitting an accelerated recovery of overpayments of taxes resulting from the carry-back provisions. The Report of the House Ways and Means Committee on this act comments on this provision as follows:

> Under existing law, refunds resulting from the carry-back of net operating losses and unused excess-profits credits cannot

> be made until a considerable length of time after the loss or unused credit arises. The claim cannot be filed until after the year in which the loss or unused credit arises; for example, a claim arising from a loss in 1945 cannot be made until after the close of the year, when the amount of the loss has been determined. Moreover, following the filing of the claim, many months are usually required for auditing the returns for all years affected and for reviewing the claim before a refund can be finally made.
>
> To speed up the operation of the carry-back refund procedure, so that taxpayers may have the benefits of a currently improved cash position for reconversion, the bill provides (1) deferment of current tax payments on the basis of anticipated losses and unused credits; and (2) prompt payment of refunds after the loss or unused credit has occurred.[4]

This modification — the details of which need not be spelled out — assured taxpayers with carry-back claims of the constructive receipt of their refunds in time to meet reconversion needs.

COMPARISON OF INVENTORY-RESERVE PROPOSAL AND CARRY-BACK OF LOSSES AND UNUSED EXCESS PROFITS CREDITS

Both the inventory-reserve proposal and the carry-back provisions represent efforts to mitigate the severity of the discriminations and inequities created by the modified annual accounting period on which wartime income and excess profits taxes were levied. In general, the objectives which the two proposals (with varying degrees of emphasis) were designed to satisfy can be formulated as follows:

1. To assign income to the proper year for tax purposes;
2. To tax income at the time when disposable cash with which the tax may be paid becomes available;
3. To prevent the taxation of ephemeral war profits at high rates; and
4. To allow all losses and deductions as effective offsets against gross income.

These objectives, of course, do not represent mutually exclusive categories but rather different emphases on related aims.

The inventory-reserve plan fulfills the objectives listed above reasonably well for one important item, inventory profits and losses. Such profits and losses under the inventory-reserve plan would be assigned more nearly to the proper years for tax purposes. So far as the effect of inventory fluctuations on profits is concerned, profits would be taxed when they give rise to disposable cash, and purely ephemeral inventory profits would not be taxed at all. An exception to this statement is that the taxation of unused reserves at the legal expiration of the reserve method might occur when the necessary cash would not be available. The Treasury proposed to meet this possibility by allowing the taxpayer to spread such taxes over three years. Offsetting the advantages of the inventory-reserve proposal is the fact that it, of necessity, would be crudely approximate; in numerous individual instances the use of general index numbers would involve serious inaccuracies. Moreover, the plan would apply solely to inventory profits and not to other items affecting income. It would also confront the Bureau with administrative problems and the taxpayer with problems of compliance — both of which would be of no mean proportions.

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[4] Report of Committee on Ways and Means on Tax Adjustment Bill of 1945 (Rept. No. 849, House of Representatives, 79th Cong., 1st Sess.), pp. 6-7.

As enacted, the carry-backs of net operating losses and unused excess profits credits, in contrast to the inventory-reserve proposal, applied to the entire business operations of the taxpayer and not merely to his inventory problems. Subject to the two-year limitation, the carry-backs provided a complete offset of all losses and deductions against gross income. If, however, losses should be incurred for several successive years, the carry-back provisions would not effectively offset all losses against income. While losses not effectively carried back may be carried forward for two years, under war conditions such losses at best would be likely to be offset against income otherwise taxable at much lower rates. This objection does not, of course, apply to an evaluation of the carry-back and carry-over provisions under peacetime conditions when no excess profits tax is in effect.

The first three objectives listed above would be fulfilled only partially or not at all by a carry-back of losses and unused excess profits credits. These carry-backs would not alter the timing of income and hence would not contribute to the assignment of income to the proper years. In their 1942 form the carry-backs would not coordinate the taxation of income more closely with the receipt of disposable cash. As passed in 1942, the carry-backs would give relief only after losses had been incurred and not when cash shortages would be likely to be most severe. This defect, however, was remedied — as has been indicated — by the accelerated refunds provided by the Tax Adjustment Act of 1945.

A loss carry-back alone would not necessarily prevent the taxation of ephemeral war profits at high rates. When the carry-back is extended to include unused excess profits credits as well as losses, however, this objective would be satisfied in a much larger proportion of cases. Nevertheless, the two-year limitation on the carry-back stands in the way of complete satisfaction of the objective of preventing the taxation of ephemeral war profits at high rates. As events have worked out, very few inventory losses from general price declines occurred during the first two postwar years. It is not yet clear to what extent such losses will occur within the first five postwar years, the period for which the inventory-reserve proposal was recommended by the Treasury. It might also be argued with some force that losses occurring as late as, say, 1950 should not be regarded as being connected with war profits sufficiently closely to justify offsetting them against such profits.

By and large, the carry-back provisions present less serious administrative difficulties than would have been presented by the Treasury inventory-reserve proposal. One administrative problem created by the carry-backs is that deficit returns must be audited with almost as much care as returns with net income when carry-over or carry-back provisions are in effect. The special treatment provided in connection with the carry-backs for depletion deductions, tax-exempt interest, and capital gains and losses requires detailed computations, but these technical points need not be spelled out in this general discussion.

Another effect of the carry-back provisions deserves emphasis. Artificial losses could be reported and the carry-back provisions be used as a means of offsetting such losses against war profits, thereby opening the way for unjustified tax avoidance. For example, a corporation might sell its most productive assets to a subsidiary corporation which it controlled, incur losses on its remaining assets, and offset these losses against income previously taxed. Opportunities of this sort have undoubtedly been especially inviting to corporations organized to do war business with an early liquidation contemplated in the postwar period. The Bureau of Internal Revenue presumably has had to spend considerable energy guarding against such abuses of the carry-back provisions.

A more important effect of the carry-back provisions was to encourage many taxpayers to maintain a high rate of expenditures during the immediate postwar years, especially 1946. The cash provided by carry-back refunds enabled many firms to be less ruthless in cutting back their outlays to peacetime rates and to be more adventuresome in undertaking peacetime developmental activities than would otherwise have been possible. In this connection many companies undoubtedly were in some degree able to deduct from war profits by way of the carry-back provisions expenditures more properly attributable in an accounting sense to peacetime revenues. The beneficial effects of these expenditures during the reconversion period, however, may have justified this inequity.

To return, however, to an evaluation of the administrative problems posed by the carry-back provisions, it seems reasonable to conclude that, considering the relative comprehensiveness of the carry-backs and the inventory-reserve proposal, the carry-back provisions have presented less severe administrative problems than would have been presented by the inventory-reserve proposal. Numerous additional detailed computations and adjustments have been required in the administration of the carry-back provisions, but for the most part they can be made in a precise manner under definite rules without arbitrary or even discretionary administrative decisions. In contrast, the inventory-reserve proposal would have required many discretionary decisions as well as the training of revenue agents in procedures quite foreign to their regular auditing duties.

In conclusion, the relative advantages and disadvantages of the inventory-reserve proposal and the carry-back provisions can be summarized as follows:

INVENTORY-RESERVE PLAN

Advantages

1. Income would be assigned more nearly to the proper year for wartime tax purposes.
2. Apart from the taxation of unused balances at the expiration of the reserve, income would be taxed more nearly when the disposable cash with which to pay the taxes would become available.
3. The taxation of ephemeral inventory profits at high rates would be avoided.

Disadvantages

1. The adjustment would apply only to one item affecting taxable income.
2. The adjustment would be approximate rather than precise. It would involve the use of data external to the individual firm, namely, price index numbers, in computing the tax base.
3. The taxation of unused reserves at the legal expiration of the reserve method would occur when the necessary cash might not be readily available.
4. Difficult administrative problems involving a large number of discretionary decisions would be raised.

Appendix B

CARRY-BACK PROVISIONS

Advantages

1. The carry-back provisions cover all items affecting taxable income.
2. The adjustments are made according to precise rules.
3. Few major administrative problems are raised.

Disadvantages

1. Income is not reallocated to the proper years for tax purposes.
2. Income is not taxed when disposable cash becomes available or refunds made when the cash is most needed. (This disadvantage, which was of major importance in evaluating the 1942 version of the carry-backs, was largely removed by the amendments of the Tax Adjustment Act of 1945.)
3. The taxation of ephemeral inventory profits at wartime rates is not completely avoided.
4. Some expenditures properly chargeable against peacetime revenues have been carried back and offset against war profits.

All in all, the carry-back provisions, as amended in 1945, probably constitute as effective a method as was practicable for mitigating the inequities and harmful economic effects of the modified annual accounting period on which wartime taxes were levied. In the absence of a widespread postwar price decline, at least through early 1949, the carry-backs have worked out better in relation to the inventory-reserve proposal than might have been anticipated when they were enacted. Price declines from peak levels have been moderate for most commodities so that, if the inventory-reserve proposal had been enacted, large unused balances would still remain in the inventory-reserve accounts. Under the carry-back provisions the necessity of disposing of these reserves is avoided. It is, though, still possible that much larger and more widespread price declines will occur within the five-year period following the termination of the war than have been experienced up to June, 1949. If such price declines should occur, the above conclusions would, of course, require reconsideration.

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